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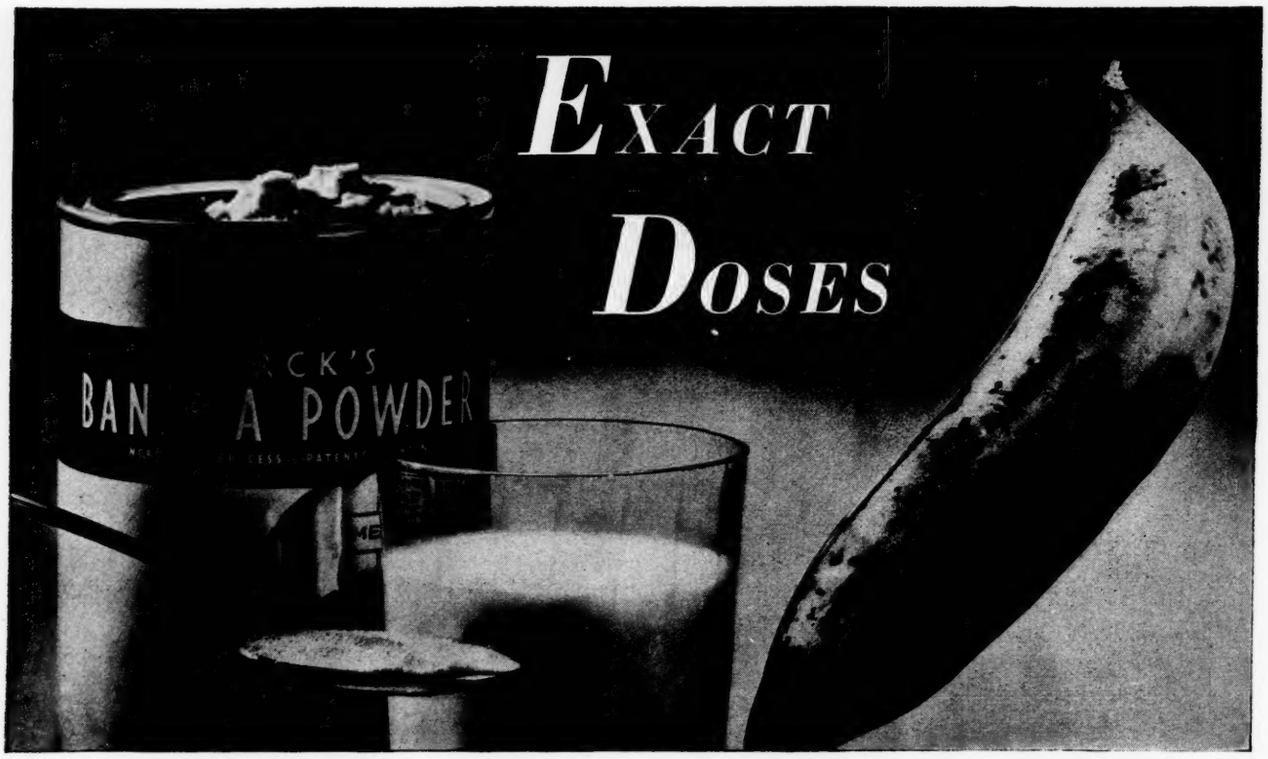

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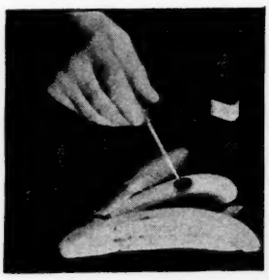

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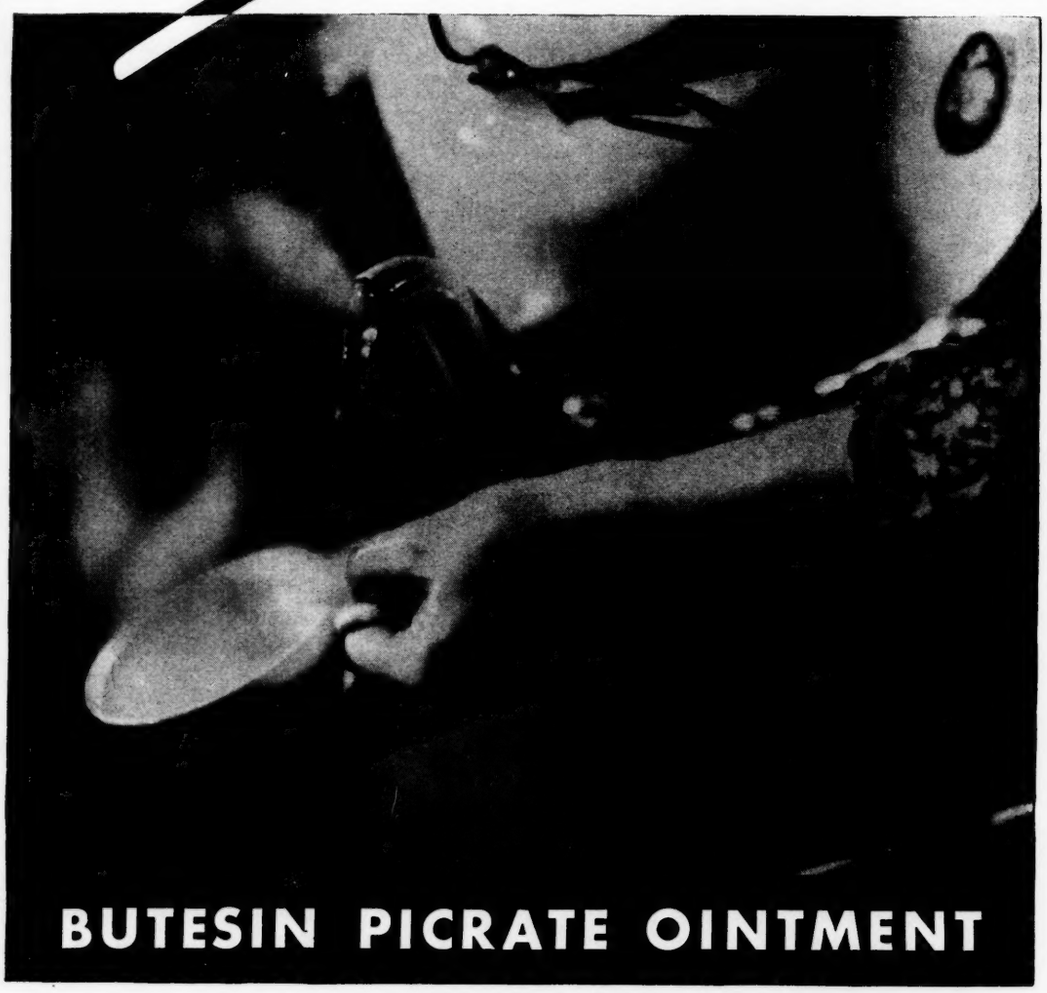

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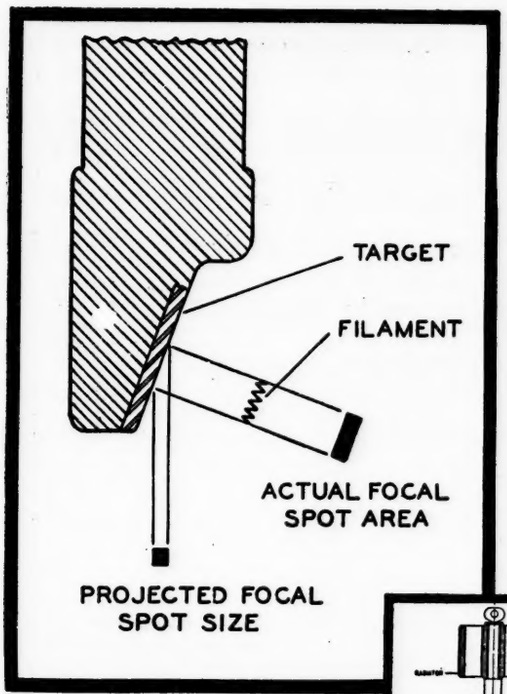

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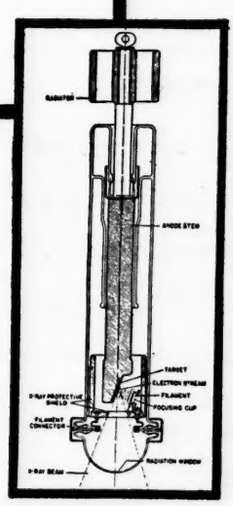

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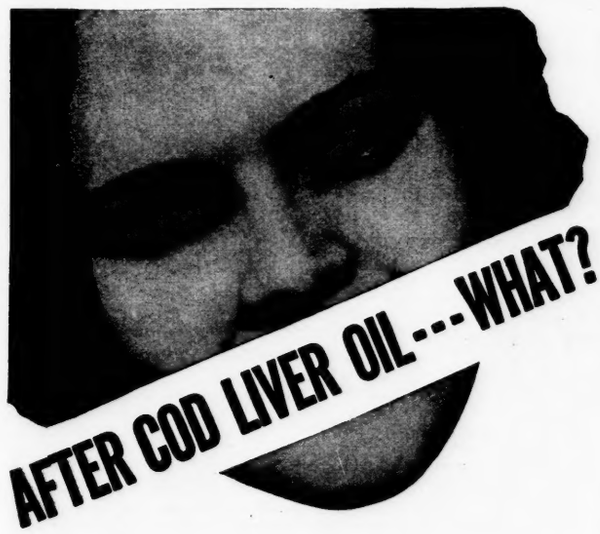

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1923

"Milk-sugar, which has been so extensively used in the past, should never be used where there is any digestive disturbance. It is not as easily digested as either cane-sugar (granulated sugar) or dextri-maltose. The latter is the best of all sugars to use, especially if there is any tendency to looseness of the bowels."—*A. Brown: The Normal Child; Its Care and Feeding, F. D. Goodchild Company, Toronto, 1923, p. 120.*

1923

"In two or three days, when the condition has improved as evidenced by fewer bowel movements and a difference in their character, sugar in the form of dextri-maltose is gradually added."—*C. M. Pounders: The diarrheal diseases of infants and children, J. Oklahoma St. M. A. 16:245-249, August, 1923.*

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"If colic is due to lactose indigestion, Dextri-Maltose should be added to the formula, as it does not ferment so easily as sugar, and is more readily assimilated."—*R. C. Ferguson: A few suggestions in difficult feeding cases, Texas St. J. M., 19:242-245, August, 1923.*

1923

"With the protein milk feeding in a couple of days the stools become putty like andconstipated. When this occurs we can gradually add dextri-maltose to the diet, finally working the baby back to a milk diet."—*F. B. Morgan: Underfeeding and fat indigestion in infants, Iowa Homeopathic J., 18:76-87, August, 1923.*

1923

"When the baby becomes abnormal, when it has a digestive disturbance and especially one of a fermentative nature, one's attitude toward the various sugars is materially changed. It seems well established that in these conditions milk-sugar, and also cane sugar, are less well tolerated than are the dextrin-maltose preparations. . . . Because these carbohydrates are better tolerated in all cases with a tendency to diarrhea of fermentative origin, and can be given sooner and in larger amounts during convalescence without danger of a return of the diarrhea, they have almost completely replaced the other sugars in the treatment of these conditions, and are always used in the special preparations such as Eiweiss milch that were devised to meet this indication. A further advantage in the use of dextrin-maltose preparations lies in the fact that, it is commonly of benefit to use two or more carbohydrates in an infant's food for reasons that will be considered later. When we add dextrin-maltose to a food we have three carbohydrates represented, milksugar, dextrin and maltose, that have a different chemical and bacteriological behavior in the intestine and have different rates of absorbability."

"Milksugar is changed into dextrose and galactose; cane sugar into dextrose and levulose; while maltose is split up into two molecules of dextrose. Dextrins are first converted into maltose and then into dextrose. The starches are first changed into dextrins and then into maltose and finally into dextrose. The disaccharides and the polysaccharides, like starch, are not absorbed as such while all the monosaccharides are. They seem, however, to differ in the readiness with which they are absorbed and utilized in the body and also differ in their fermentability in the intestinal tract. Dextrose is the least easily fermented and the most readily absorbed of the monosaccharides. It is moreover the normal constant sugar of the blood and can, therefore, be utilized at once without first being stored as glycogen in the liver. The levulose and galactose, which form half of the intestinal end products of cane sugar and milk-sugar respectively, are said to be more readily fermented and less readily absorbed, and must first be changed into glycogen and later into dextrose before they can be utilized in the body. This would seem to offer an explanation for the clinical experience that dextrin-maltose preparations are more acceptable to atrophic, or marantic babies, to weak babies with digestive disturbances, and to all cases in which there is a tendency to fermentation. Maltose for chemical and commercial reasons has not been available for infant feeding and is never used alone. It is always combined with dextrins which represent an intermediate stage in the conversion of starch into maltose. In fermentative disorders this is of considerable advantage, as we know clinically, probably because the simultaneous and more gradual conversion of dextrin into maltose, and maltose into dextrose, leaves less of the dextrose at any one time to undergo fermentation. It may also be of value for osmotic reasons. This probably offers a further explanation why starch is so often added with advantage instead of more sugar, because the digestion of starch requires a still further step, the conversion into dextrins."

"In terms of the kitchen one can begin with two to four level teaspoonfuls and gradually increase the amount up to six or eight or ten level teaspoonfuls in the total mixture. The dextrin-maltose preparations can commonly be used in much larger amounts, up to three or four tablespoonfuls."—*I. A. Abt: Pediatrics, W. B. Saunders Co., Phila., 1923, Vol. 2, pp. 644-646, 690.*

1923

"Carbohydrates were added gradually. Dextri-maltose is apparently the best of the sugars."—*A. Brown and G. Boyd: Acute intestinal intoxication in infants, Canad. Med. A. J. 13:800-803, Nov., 1923.*

1924

". . . the ferment maltase which converts maltose into a monosaccharide evidently occurs in other parts of the body as well as the intestines because when it is injected subcutaneously it can not be recovered in the urine. This partly accounted for the fact that the power of assimilation of the body for maltose is twice that of the other two, as Czerny and Keller found. For this reason the possibility of over stepping the infants' tolerance for sugar is fifty per cent less when this sugar is used. In being more rapidly inverted and absorbed it is less liable to cause fermentation. Clinically these observations have been borne out and the consensus of opinion favors maltose as the sugar of choice. Czerny, Keller, Finkelstein, Langstein, and Meyer used it in a preparation consisting of about equal parts of dextrin and maltose with some sodium chloride."—*Artificial feeding of infants, International Med. Digest, 5:661-667, July, 1924.*

1924

"In a communication published in 1918, the author reported striking results in eleven out of twelve cases. The initial mixture in most instances consisted of 270 c.c. skimmed milk, 360 c.c. water, 60 g. farina and 30 g. dextri-maltose boiled an hour or longer in a double boiler until sufficiently thick to adhere to an inverted spoon. . . . In 1921 his series of cases so treated had reached twenty-eight, with a mortality of 3.5 per cent."—*L. W. Sauer: Hypertrophic pyloric stenosis, Arch. Pediat., 41:145-170, March, 1924.*

1924

In dyspepsia, "The carbohydrate must not be allowed to exceed 3 per cent. Dextri-maltose is the most suitable sugar."

In the treatment of decomposition (atrophy, malnutrition, marasmus), ". . . when there has been obvious improvement, dextri-maltose is gradually increased from 3 to 5 per cent."—*B. Myers: The nutritional disturbances of infancy, Brit. M. J., 1:1079-1083, June 21, 1924.*

1924

"The most desirable sugar is dextri-maltose, because of all the sugars maltose is least apt to ferment."—*A. I. Blau: The use of protein milk in pediatrics, Med. J. & Rec., 119:359, April 2, 1924.*

1924

"Maltose is absorbed in larger proportion than other sugars, breaks up into two molecules of dextrose, and often quickly gives a striking gain in weight."—*F. M. Fry: Fixed principles in the feeding of infants, Canad. M. A. J., 14:503-505, June, 1924.*

1924

"The treatment of artificially fed children in the first of these groups consists in putting them on a low fat dietary, and giving them carbohydrate in the form of one of the less fermentable sugars—e. g., dextrimaltose."—*L. G. Parsons: Wasting disorders of early infancy, Lancet, 1:687-694, April 5, 1924.*

1924

In acute dyspepsia, "Some carbohydrate is essential to promote water-retention in the tissues and prevent loss of weight, but only such carbohydrates should be selected as will produce the least intestinal fermentation, such as dextri-maltose, which may be administered at first in small quantities, increasing the amount every second day."

Concerning the treatment of diarrhea, "If the weight remains stationary, it is an indication that loss of substance is occurring through the stools, mostly in the form of alkaline salts. To equalize this loss of substance, the diet must be increased, but in such a way as to avoid causing fermentation. This may be done by adding dextri-maltose and preparations of protein to the food, increasing the calories until the infant is taking 160 calories per kilo. of body weight."—*H. L. Ratnoff: Nutritional disturbances, Arch. Pediat., 41:771-784, Nov., 1924.*

1925

"According to Finkelstein, infants will tolerate a much higher mixture of maltose and dextrin than either lactose or cane sugar."

1924

"Milk sugar causes abnormal acid fermentation. This results in symptoms of intestinal irritation due to destruction of epithelium which interferes with the proper emulsification of fats; therefore, the presence of fats acts as an additional irritant and provokes loose bowels.

"When intestinal irritation exists, caused by the presence of milk sugar, the symptoms will continue even though the milk sugar has been greatly

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Employed in Infant Feeding

reduced, because even small quantities of this milk sugar will keep up lactic acid fermentation and consequent destruction of the epithelium."

"Cane sugar is less irritating to the intestinal mucosa than milk sugar. It is easily assimilated, and for this reason has many advocates. I have seen good results therefrom. When malt sugar cannot be procured, my advice is to use cane sugar."—*L. Fischer: Diseases of Infancy and Childhood, F. A. Davis Co., Phila., 1925, V. 1, pp. 65, 66, 67.*

which is present in any reasonable mixture. It was said that lactose caused fever more readily than the other sugars. It having been proved, however, that 'sugar fever' is not caused by sugar, it is evident that this statement is of no importance. Gain in weight is for a time more rapid with maltose and saccharose than with lactose, because of the easier assimilation and more rapid absorption of these sugars, which influences the quantity of water eliminated by the kidneys. Lactose, in reasonable amounts, under normal conditions, has a slight laxative effect, as does maltose, while saccharose is slightly constipating.

approximating that found in human milk are fed. . . . The dextrin-maltose preparations possess certain advantages. When they are added to cow's milk mixtures, we have a combination of three forms of carbohydrates, lactose, dextrin and maltose, all having different reactions in the intestinal tract and different absorption rates. Because of the relatively slower conversion of dextrins to maltose and then to dextrose, fermentative processes are less likely to develop. Those preparations containing relatively more maltose are more laxative than those containing a higher percentage of dextrin (unless alkali salts such as

1925

"If, however, dyspepsia develops, the skimmed milk or calcium caseinate solution should promptly be given before each breast-feeding. Dextri-maltose should be added because of the great need of these small infants for a high caloric diet. This sugar does not readily ferment and is well tolerated."—*A. M. Dannenberg: Dyspepsia in the breast-fed, new-born infant: causes, symptoms and management, Arch. Pediat., 42:281-291, May, 1925.*

When given in excess, lactose is more likely than the other disaccharides to cause diarrhea, probably because of its relatively slow absorbability. The order is lactose, saccharose, maltose and the dextrin-maltose mixtures. The larger the proportion of maltose in these dextrin-maltose mixtures, the more likely are they to be laxative in action."—*J. L. Morse: Clinical Pediatrics, W. B. Saunders Co., Phila., 1926, p. 159.*

potassium salts are added). It is common experience clinically that larger amounts of dextrin-maltose preparations may be fed as compared with the simple sugars. Obviously, when there is a lessened sugar tolerance such as occurs in many digestive disturbances, dextrin-maltose compounds may be used to advantage."—*Queries & Minor Notes: Maltose or lactose in infant feeding, J.A.M.A. 88:266, Jan. 22, 1927.*

1925

In the treatment of diarrhea, "Dextri-maltose preparations are preferred, for they do not ferment readily, are rapidly absorbed and leave very little for fermentation."—*V. A. Blenkle: Protein milks in infant feeding, Arch. Pediat., 42:743-760, Nov., 1925.*

1925

"Infants gain in weight when malt-sugar or the malt preparations are given."—*L. Fischer: The Health-Care of the Baby, Funk & Wagnalls Co., New York, 1925, p. 96.*

1925

"While it would seem on theoretical grounds that milk sugar should be chosen, we find in practice that dextri-maltose seems to be the kind of sugar that works best."—*F. H. Richardson: Simplifying Motherhood, G. P. Putnam's Sons, New York, 1925, p. 140.*

1926

In intestinal intoxication, "I have had more experience with dried skimmed milk in which 2 to 5 per cent dextrimaltose, barley or rice flour has been cooked, and the mixture subsequently fermented by lactic acid bacilli or soured with lactic acid, than with any other food except protein milk."—*G. F. Powers: A comprehensive plan of treatment for the so-called intestinal intoxication of infants, Am. J. Dis. Child., 32:232-257, August, 1926.*

1926

"Preferably a dextrinmaltose carbohydrate should be added after the bowel movements become thick and pasty."—*T. H. Harrell and E. Boyd: Dyspepsia in the breast-fed infant, Indiana M. J., 19:402-404, Oct., 1926.*

1926

"If there is an improvement in the bowel movements carbohydrate may be added. Again following the teaching of the originator of protein milk, the carbohydrate added should be the one that is most easily assimilated. Dextri-maltose is therefore the carbohydrate of choice."—*Summer diarrheas in the young, International Med. Digest, 9:111-118, August, 1926.*

1927

"Maltose and dextrin compounds are of practical value when large amounts of cane or milk sugar are not well taken."—*J. H. Hess: Infant feeding—its present status, J. Indiana M. A. 20:419-422, Nov., 1927.*

1927

"Maltose ingested as such becomes at once dextrose and dextrose which is the most easily absorbed of the sugars."—*L. T. Royster: Nutrition and Development, Clinical Pediatrics, D. Appleton & Co., New York, 1927, V. 10, p. 35.*

1927

"The simpler sugars—glucose, ordinary cane sugar, milk sugar, etc., cause acid fermentation in the bowel and have a definitely laxative tendency, which may, when carried to excess, cause severe intestinal irritation.

"The more complex carbohydrates, of which dextrin is the type, ferment more gradually and do not have this laxative effect.

Regarding the treatment of diarrhea, "In our experience, the most satisfactory carbohydrate for routine use is Mead's dextrimaltose No. 1."—*F. R. Taylor: "Summer Complaints," Southern Med. & Surg., pp. 555-559, August, 1927.*

1926

"There is no proof that milk sugar is necessary for the infant's nutrition, although it is this sugar that occurs in the milk of all mammals and there is abundant clinical experience to show that the other carbohydrates are just as beneficial and more easily digested."

"Malt sugar (maltose and dextrin), however, seems to be more easily digested and better taken

1926

In gastrointestinal disorders, "Dextri-maltose has been preferred to the other sugars as apparently less irritating."—*E. Cassie and U. Cox: The examination of the gastric contents in infants, with some considerations as to the value of lactic acid milk in infant feeding, Lancet, 2:322-325, August, 14, 1926.*

1927

" . . . I begin to add carbohydrates slowly, by

replacing ¼ ounce Casec every two days with ¼ ounce of Dextri-Maltose, preferably Dextri-Maltose Number one. As a rule, this is tolerated. When one ounce of Dextri-Maltose is used, the Casec, of course, should be discontinued."—*J. W. Reed: The etiology and treatment of diarrhoeas of infancy, Virginia M. Monthly, 53:732-735, Feb., 1927.*

care of by infants having had much digestive trouble."—*R. H. Dennett: Simplified Infant Feeding, J. B. Lippincott Co., Phila., 1926, pp. 42, 61.*

1926

"It is inadvisable to give more than 7% of milk sugar continously in an infant's food. Larger amounts may, however, be given safely for considerable periods, when, for any reason, it is necessary to keep one or more of the food elements low. Eventually, however, fermentation, with diarrhea, is almost certain to develop. If larger amounts of sugar than 7% are desirable for any reason, it is usually better to give part of the sugar in the form of one of the combinations of maltose and the dextrins, which are more quickly absorbed and consequently less likely to cause fermentation. Milk sugar is never found in the urine or feces under normal conditions, unless more than 7% of sugar is given. It is true that the assimilation limit of milk sugar is lower than that of the other disaccharides, but this limit is far above the amount

1927

"The milk might be skimmed or whole, and carbohydrate, preferably in the form of dextri-maltose, added as considered necessary."—*L. Thatcher, in a discussion of paper by H. C. Cameron: A discussion on therapeutic modification on the diet in infancy, Brit. M. J. 2:1171-1174, Dec. 24, 1927.*

1927

"It is generally accepted that cow's milk without modification is not a satisfactory infant food. So far as the carbohydrate is concerned, about one-fifth to one-eighth ounce per pound of infant's body weight is required daily. To supply this amount it is necessary to add carbohydrates in some form. Admitting that lactose is the sugar supplied in human milk, it does not follow that it is the sugar best tolerated in another medium, such as cow's milk. It is generally believed that lactose is more laxative than sucrose—that it must be fed with a certain amount of caution, as fermentative upsets are likely to follow if amounts

1927

"Maltose Dextrin.—This is most easily digested.

"Laxative Properties of Sugar.—All sugars generally are laxative. The addition of an alkali to a maltose dextrin compound has a laxative effect. (A certain preparation of dextri-maltose numbers I and II are constipating. Dextri-maltose number III, with potassium carbonate, an alkali, is laxative.)"

"Dextri-maltose number I is the preparation of choice."—*A. J. Bell: Feeding, Diet and the General Care of Children, F. A. Davis Co., Phila., 1927, p. 44.*

1928

"Dextri-Maltose (Mead's) has been more satisfactory in my hands. The No. 1 and No. 2 are somewhat constipating, where the No. 3 is somewhat laxative. You have here a sugar which may be used with advantage according to the nature of your feeding case."—*K. M. Jarrell: Infant feeding, West Virginia, M. J. 24:385-389, August, 1928.*

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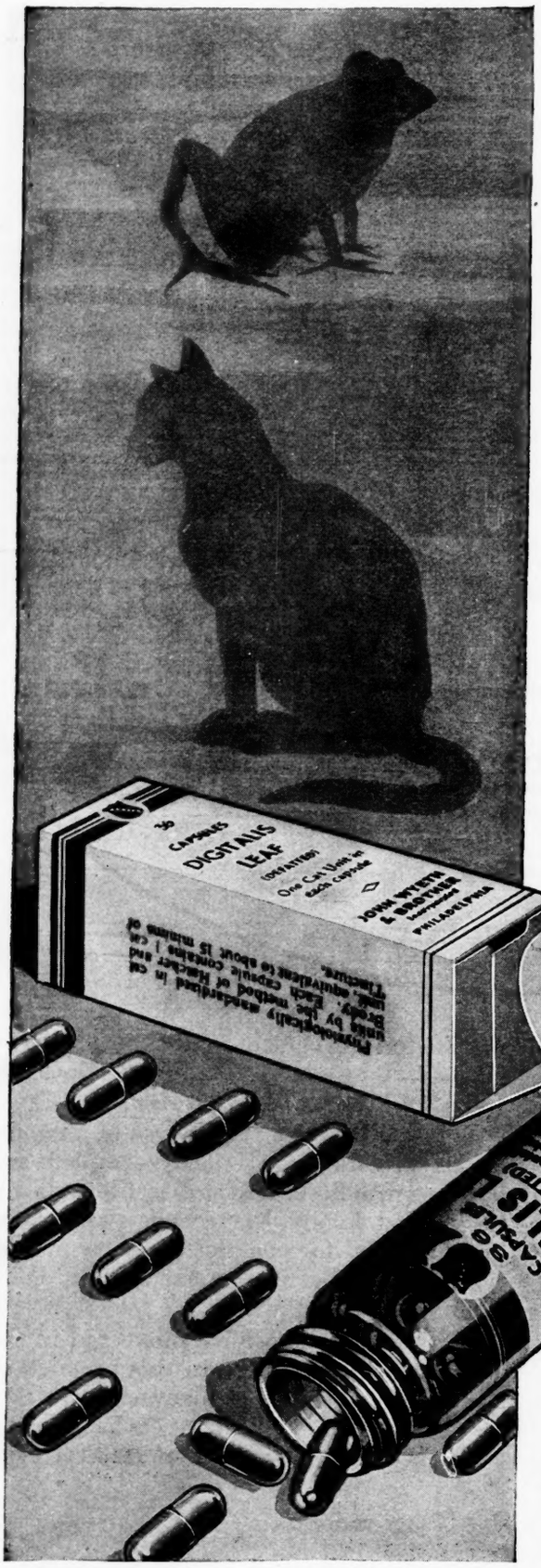

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* A Manual of Pharmacology, Sollmann, 4th Ed., p. 540.

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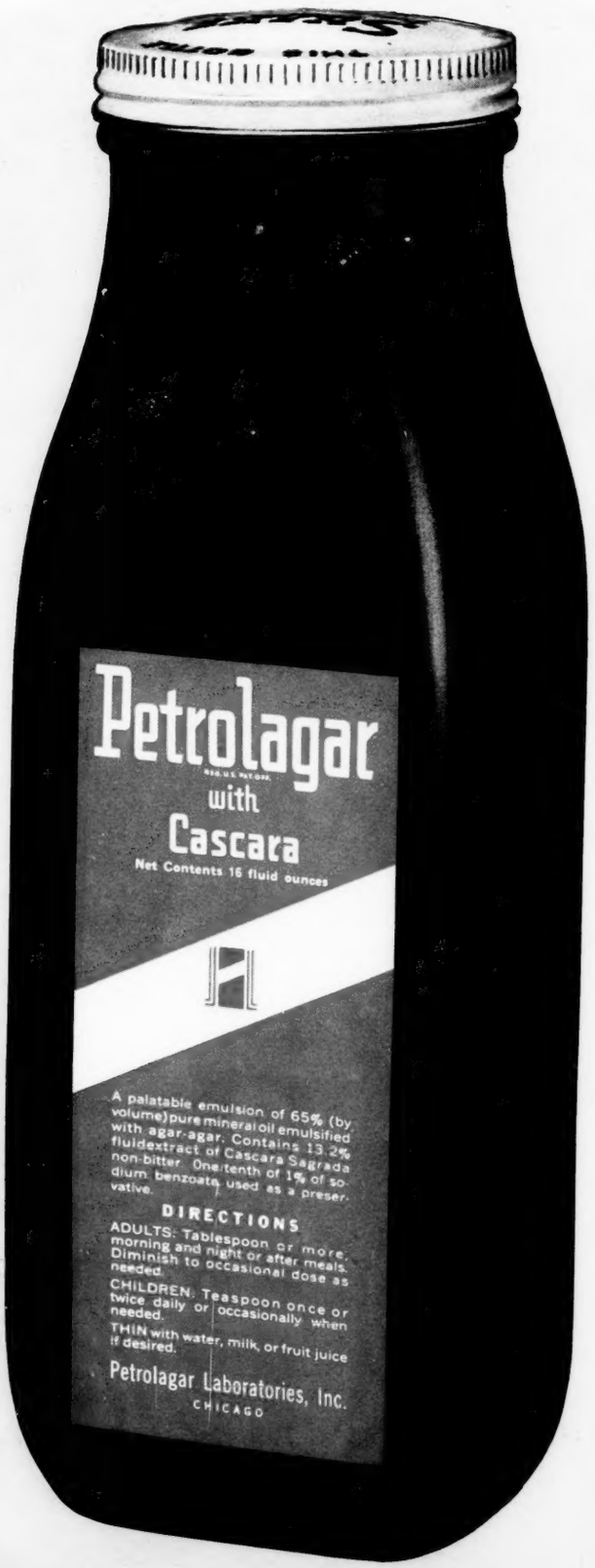
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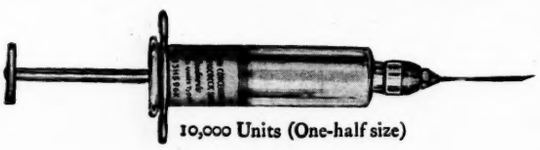

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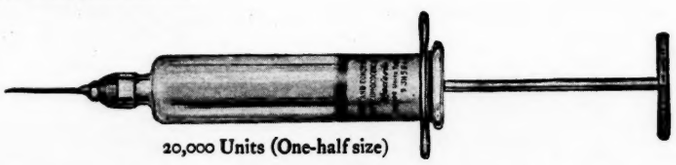

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DEVELOPMENT OF KNOWLEDGE CONCERNING RÔLE OF SYPHILIS IN CARDIOVASCULAR DISEASE

LEWIS A. CONNER, M.D.
NEW YORK

At the meeting of the American Medical Association last year the Frank Billings Lecture was devoted to a review of the important part played by the great physician whose name the lectureship bears in the astonishing progress made by medical education in this country during the past thirty years. The distinguished speaker, Dr. Thayer, closed his remarks with the following prayer: "May he who has played so large a part in this progress long be spared to guide us with his wise counsel." This fervent wish, which surely must have been shared by everyone in the large audience, might well have been directed also to the lecturer himself.

It is sad indeed to realize that within a few months of the time these words were spoken both Frank Billings and William Sydney Thayer had ended their earthly careers.

In mourning the almost simultaneous loss of two such leaders one can be grateful for the knowledge that the inspiration derived from each will not soon be lost. The imprint of their personalities has been too deep to be easily effaced.

The importance of syphilis as an etiologic factor in cardiovascular disease does not at the present time, need to be labored. The disease is recognized universally, I think, as being second in importance only to rheumatic fever and to senile degenerative changes in the arteries. Yet the general recognition of its importance is recent as compared with that of the other two factors mentioned. While the close relation of rheumatic fever to diseases of the heart was widely understood almost a century ago, the causal relationship between syphilis and disease of the aorta was still in dispute at the beginning of the present century.

Without attempting to decide whether or not syphilis was introduced into Europe from America at the time of the voyages of Columbus, the knowledge of that disease may be said to have begun with the devastating epidemic of syphilis which swept over Europe in the closing years of the fifteenth and the early years of the sixteenth century. This knowledge at first, as may be supposed, was chiefly confined to the external manifestations of the early stages of the disease, and even these were for many years hopelessly confused with those of other venereal and genito-urinary conditions. It is not surprising that the effects of syphilis on the circulatory system, which for the most part become manifest years after the active and visible symptoms of the disease have subsided, should long have failed of recognition at a period when medicine as a whole was in so primitive a state.

As the disease came gradually to have more definite outlines, and especially as anatomic studies became more frequent, the association of a history, or of the external signs, of syphilis with aortic aneurysm began to be noticed.

Vesalius (1514-1564), who first called attention to aortic aneurysm, made no mention of its association with syphilis, but in the writings of two of his famous contemporaries, Paré and Fernel, are intimations that this association had been recognized. There was, however, in the minds of these, as well as of later, writers doubt as to whether syphilis itself or the accompanying mercurial cachexia was the actual cause of the trouble.

Osler,[1] in his Schorstein lecture, "Syphilis and Aneurysm," quoted the following lively passage from the English edition (1634) of Paré's works:

> The aneurismaes which happen in the internall parts are uncurable. Such as frequently happen to those who have often had the unction and sweat for the cure of the French disease, because the blood being so attenuated and heated therewith that it cannot be contayned in the receptacles of the Artery, it distends it to that largenesse as to hold a man's fist; Which I have observed in the dead body of a certain Taylor, who by an Aneurysma of the Arterious veine suddenly whilst hee was playing at Tennis fell downe dead, the vessell being broken; his body being opened I found a great quantity of blood powred forth into the capacity of the chest, but the body of the Artery was dilated to that largeness I formerly mentioned, and the inner Coate thereof was bony. For which cause within a while after I shewed it to the great admiration of the beholders in the Physitions Schole whilest I publiquely dissected a body there; the whilst he lived said he felt a beating and a great heate over all his body by the force of the pulsation of all the Arteryes, by occasion whereof he often swounded.

It was, however, Lancisi[2] (1654-1720) who half a century later, by his anatomic studies, first supplied a more substantial foundation for the theory of this causal relationship. So strongly was he convinced of this association that in his posthumous work he discussed at length the subject of "aneurysma gallicum," or aneurysm due to the French disease (the common name for syphilis), and ventured to give the signs and symptoms by which it may be recognized.

Elsewhere, in his study of the causes of sudden death, he wrote:[3]

> And indeed I cannot here conceal the fact, ascertained from frequent experience, that aneurysms destroy unexpectedly those patients particularly who lead a less continent and temperate

The Frank Billings Lecture, read before the Section on Practice of Medicine at the Eighty-Fourth Annual Session of the American Medical Association, Milwaukee, June 14, 1933.

1. Osler: Brit. M. J. 2: 1509, 1909.
2. Lancisi: De motu cordis et aneurysmatibus, Rome, J. M. Salvioni, 1728.
3. Lancisi, in Long: Selected Readings in Pathology from Hippocrates to Virchow, Springfield, Ill., Charles C. Thomas, publisher, 1929, p. 86.

life. Those indeed who live sparingly, with sobriety and continently, are apt to be taken off with another type of disease, a slow and insidious dropsy, with lasting agony.

The next important contributions to the subject of syphilis of the circulatory organs were those of Morgagni [4] (1682-1771). These contributions were surprisingly numerous and striking.

In his dissections of syphilitic bodies this author noted lesions in the heart, the pericardium, the aorta and other arteries. In the case of a woman of 22 years who had shown grave symptoms of constitutional syphilis and of heart disease, autopsy showed extensive ulceration of the posterior surface of both ventricles. In another case, that of a syphilitic man of 59 years who had died suddenly after a period of cerebral symptoms, the examination revealed rupture of a thoracic aneurysm as well as extensive disease of the arteries of the brain. In the summary of this report Morgagni stated distinctly that the changes in the cerebral arteries and those in the aorta evidently had a common cause.

As a result of Morgagni's important revelations concerning the effects of late syphilis on the heart and arteries, one might have anticipated thereafter a steady, progressive unfolding of knowledge concerning cardiovascular syphilis. But there followed a long, sterile period during which even the evidence accumulated by Lancisi and Morgagni seemed to be entirely forgotten. Proksch,[5] in his "Geschichte der venerischen Krankheiten," sought the explanation for this strange phenomenon and placed the responsibility for it squarely on the head of John Hunter, the English surgeon, then at the zenith of his influence. It was, he said, the few casual words uttered by Hunter that caused the subject of visceral syphilis to disappear almost completely from the textbooks on venereal diseases for more than half a century.

Hunter stated: [6]

> We have not seen the brain affected, the heart, stomach, liver, kidneys, nor other viscera; although such cases are described in authors.

Elsewhere he wrote:

> The skin, throat and nose are more readily affected by the lues venerea than the bones and periosteum, which, on the other hand, suffer sooner than many other parts, particularly the vital parts, which perhaps are not at all susceptible of the disease.

It was the weight of Hunter's great authority throughout the medical world that caused this error to have such direful consequences. Proksch,[5] who recognized the integrity and sincerity of Hunter, was disposed to lay much of the blame on his contemporaries and successors for their servile acceptance of these dicta. "Blind trust in authority, indolence, ignorance of the literature and history submerged for a long time almost all real research and knowledge of the periods before Hunter."

It seems to be quite true that, from the middle of the second half of the eighteenth century to the beginning of the second half of the nineteenth, not only was little of importance added to the knowledge of the ravages of syphilis in the vascular system, but the important contributions of Lancisi and Morgagni were allowed to pass into oblivion.

It was during the early part of this period that Joseph Hodgson [7] gave his classic description of "praeternatural dilatation" of the arch of the aorta (apart from aneurysm), in which he cited two typical examples with involvement of the sinuses of Valsalva and the aortic cusps and stated further that "aneurysm frequently exists at the same time." He credited Scarpa with having recognized this same condition of dilatation of the ascending aorta and with having found it frequently in association with aneurysm. Hodgson wrote: "The condition of the ascending aorta appears to be generally induced by a previous disease in the coats of the vessel, in consequence of which it loses its elasticity and does not again regain its natural dimensions after the blood has passed through it." But he failed to realize that the "previous disease" was syphilis, as did also apparently Scarpa,[8] in spite of the fact that elsewhere he remarked: "Syphilitic patients are very liable to steatomatous and ulcerative disease of the coats of the aorta."

So the matter rested at the end of the first half of the nineteenth century. The hints of Paré and Fernel and the convincing anatomic demonstrations of Lancisi and Morgagni had disappeared from the writings on venereal diseases and had been forgotten. Aneurysm was still common, but speculation as to its cause was concerned chiefly with a consideration of the importance of physical strain, either alone or in conjunction with the arterial changes common to later life. Those who were tempted to accept the latter as a satisfactory explanation were constantly embarrassed by having it pointed out to them that the usual age for the appearance of aneurysm was a full score of years earlier than that for arteriosclerosis.

The medical officers of the British army were much concerned over the high incidence of deaths from thoracic aneurysm among the soldiers and were seeking means to prevent them. The reports of the army medical department for the decade beginning with 1860 contain a surprising number of studies and case reports of this condition. In the report for 1862, Assistant Surgeon Lewes [9] recorded a case from the army in India with the unequivocal title "Case of Aneurysm of the Thoracic Aorta Resulting from Secondary Syphilis." Osler, in his Schorstein lecture, in referring to the work of the medical officers of the British army, said:

> Professor Aiken in the third edition of his textbook (1866) states that in 26 syphilitic soldiers who died during four years, 17 presented changes in the aorta, "cicatricial-like loss of substance of the inner coats, small local dilatations of the artery, and in several cases aneurysmal expansions, one as large as an orange, which proved fatal."

The medical report for 1868 contains an interesting paper by Inspector General Lawson,[10] dealing with the frequency of aneurysm among the British soldiers and its apparent increase. Lawson disagreed with Rokitansky's view that aneurysm is due to atheroma and cited cases to show that aneurysm may be present in aortas which are free from atheromatous change. He

4. Morgagni, cited by Proksch: Die Geschichte der venerischen krankheiten, Bonn, P. Hanstein, 1900, vol. 2, p. 459.
5. Proksch: Die Geschichte der venerischen Krankheiten, Bonn, P., Hanstein, 1900, vol. 2, p. 531.
6. Hunter: A Treatise on the Venereal Disease, ed. 2, London, G. Nicoll, 1788, p. 305.
7. Hodgson: A Treatise on the Diseases of Arteries and Veins, Containing the Pathology and Treatment of Aneurisms and Wounded Arteries, London, T. Underwood, 1815, p. 45.
8. Scarpa, quoted by Allbutt, T. C.: Diseases of the Arteries, Including Angina Pectoris, New York, The Macmillan Company, 1915, vol. 2, p. 168.
9. Lewes: Army M. Dept. Rep., London, 1862, vol. 4, p. 512.
10. Lawson: Army M. Dept. Rep., London, 1868, vol. 10, p. 267.

expressed the belief that aneurysm often results from an acute ("phlegmonous") process in the wall, but he apparently did not suspect syphilis even though some of the patients cited were known to have had the disease.

The state of mind of the medical profession at this time toward the general subject of visceral syphilis is indicated by the opening paragraph of Wilks'[11] important contribution to that subject, which appeared in 1863:

> The syphilitic affections of the internal organs of the body constitute a subject which is comparatively novel, and one, therefore, which is still open to further investigation. Although it is but a few years since specimens illustrating it were received with more than incredulity by the profession, yet so strong has been the evidence in favour of modern observations that few pathologists now retain any doubt about their general truth. Scepticism, however, does still largely prevail.

Wilks then described instances of syphilitic disease of the liver, spleen, larynx, trachea, lungs and other organs, referred to an aneurysma of the abdominal aorta found in a young syphilitic woman and described the case of a syphilitic woman of 38 years who died with severe cerebral symptoms and in whom necropsy showed softening in the right corpus striatum and thalamus:

> The blood vessels of the brain were remarkably diseased, not by the usual atheromatous or earthy patches, involving a large portion or entire circumference of the artery, but by the deposition of numerous hard round grains, which had been formed in their coats and projected like so many tubercles both within and without the vessel.

Steenberg,[12] in a Danish monograph in 1860, had shown the causal relationship between syphilitic diseases of the brain and changes in the cerebral arteries, but Wilks seems to have been the first to distinguish clearly between the lesion of arteriosclerosis and that of syphilitic disease of these vessels. This distinction was confirmed by Lancereaux,[13] in 1866 and by Allbutt,[14] in 1869, and the whole subject of syphilitic disease of the cerebral arteries was put on a firm foundation by the important monograph of Heubner,[15] in 1874.

To return to the subject of aortic disease and aneurysm, which was giving the surgeons of the British army so much concern, in 1873, in a Strasbourg dissertation, Helmsteder[16] gave what was undoubtedly the first accurate description of the aortic lesion associated with aneurysm and pointed out the features distinguishing it from the lesion of arteriosclerosis. He failed, however, to recognize its relationship to syphilis.

Uncertainty regarding the essential etiologic factors still ruled when on Nov. 23, 1875, Francis H. Welch,[17] assistant professor of pathology in the Army Medical School at Netley, England, presented before the Royal Medical and Chirurgical Society of London his paper, entitled "On Aortic Aneurysm in the Army and the Conditions Associated with It"—a paper which Osler, writing in 1909, declared "remains the most important communication upon the subject in English." Welch's paper was based on a study of the aorta in thirty-four cases of aneurysm from the pathologic records of the Royal Victoria Hospital at Netley, England.

The more one studies this modest contribution of Welch the more one is convinced that it contains almost all the essential facts relating to the etiology and pathology of syphilitic aortitis and aneurysm as they are known today. He found a characteristic lesion of the wall of the aorta, associated in most instances (66 per cent) with syphilis but in a few instances with rheumatic fever or chronic alcoholism, which preceded and was the cause of the aneurysmal dilatation and which consisted of "a diseased condition of the contiguous layers of the internal and middle coats of the vessel—a tissue growth terminating in degeneration—which by impairing the elasticity and contractility of the walls, allows of their expansion and dilatation under the tension of normal blood pressure, or this abnormally increased by any cause."

He noted that the process began at the root of the aorta and proceeded distally and that the sinuses of Valsalva were usually involved, as were also frequently the aortic cusps. The process, he declared, might retrogress without serious damage to the system at large, but if extensive or severe was followed by one of three fatal complications—aneurysm, damage to the aortic valve or hypertrophy and dilatation of the heart. Almost the only thing lacking in his description is mention of the proneness of the aortic lesion to encroach on the mouths of the coronary arteries.

In particular, he emphasized the distinction between this process and the usual form of atheroma which sometimes accompanies it and which, he maintained, never produces aneurysm and at the age of aneurysm is innocuous.

The description of the gross appearances of the early lesion in the aorta is graphic and accurate. In his histologic description he failed to emphasize the destruction of the elastic tissue in the media, which is so characteristic a feature, but he repeatedly referred to the loss of elasticity caused by the changes in the middle coat. With respect to prophylaxis, Welch concluded that since syphilis is the chief cause of the disease, effective measures for the prevention of aneurysm must deal with the suppression of syphilis.

The importance of Welch's contribution was entirely overlooked. The opinions expressed were vigorously opposed by his nonmilitary English colleagues and were completely ignored in other countries. The facts concerning syphilitic aortitis were years afterward to be rediscovered and newly presented by German pathologists before Welch received his meed of credit. Osler,[1] in 1909, quoted from a letter just received from Colonel Welch referring to the reception given to his paper:

> The only individual who gave me the slightest support in 1876 was Sir James Paget, and since then one or two others have written giving their experience, but for long after, as could be seen in the narration of annual cases in the professional journals, there was a dead set against my deductions.

Almost immediately after the appearance of Welch's paper there were published two reports by Heiberg[18] describing the characteristic aortic changes, including those of the media, ascribing them to syphilis and distinguishing them sharply from those of atherosclerosis. Heiberg's contribution also was destined to remain long unnoticed.

The beginning of the final struggle for the recognition of the specific nature of syphilitic aortitis dates

11. Wilks: Guy's Hosp. Rep. **9**: 1, 1863.
12. Steenberg, reviewed in Jahrb. ü d. Fortschr. d. ges. Med. **4**: 328, 1861.
13. Lancereaux: Traité historique et pratique de la syphilis, Paris, J. B. Baillière et fils, 1866, p. 825.
14. Allbutt: St. George's Hosp. Rep. **4**: 45, 1869.
15. Heubner: Die leutische Erkrankung der Hirnarterien nebst allgemeinen Erörterungen zur normalen und pathologischen Histologie der Arterien sowie zur Hirncirculation, Leipzig, F. C. W. Vogel, 1874.
16. Helmsteder: Du mode de formation des aneurysmes spontanés, Inaug. Dissert, Strasbourg, 1873.
17. Welch: Med. Chir. Tr., London **59**: 59, 1876.
18. Heiberg: Norsk mag. f. laegevidensk. **6**: 55, 1876.

from the appearance, in 1885, of the thesis of Döhle,[19] who reported from the pathologic institute of Heller in Kiel a carefully studied case of aortic disease in a man of 25 years who showed many evidences of severe late syphilis. He emphasized the changes in the media, ascribed to these the peculiar appearance of the aorta and noted the slight involvement of the intima in contrast to that seen in the usual type of arteriosclerosis.

Before any further reports appeared from Heller's laboratory, Malmsten [20] published an important monograph showing statistically the great frequency of syphilis in aortic aneurysm and giving an accurate description, with illustrations, of the gross appearances of the aorta, together with microscopic changes which he described as a "sclerogummatous" process. Although his microscopic description was incorrect in certain details, Malmsten's contribution was important and deserved much greater recognition than was accorded it in Germany when the battle had been won and the identity of syphilitic aortitis had been established.

Döhle's first report was followed, during the decade beginning with 1890, by a series of careful studies by various workers in Heller's laboratory, including a second paper by Döhle,[21] in which most of the details of the microscopic picture of syphilitic aortitis were fully described. Nevertheless, these views continued to meet with opposition from most of the representative German pathologists. How strong this opposition was was made clear at the meeting, in 1899, of the Deutsche pathologische Gesellschaft,[22] at which Heller defended the views of the Kiel school as to the specific nature of the aortic lesion associated with aneurysm (syphilitic mesaortitis) and emphasized the features distinguishing it from atherosclerosis. Heller's views were supported by Straub,[22b] who in a paper giving the results of postmortem examination in a large number of cases of dementia paralytica reported that the lesions described by Döhle and Heller were found in the aorta in 82 per cent of the entire group of patients and in 92 per cent of the men. The prolonged discussion which followed these presentations shows that the majority of those taking part were still unwilling to accept the view that the specific character of syphilitic aortitis had been established. It was not until the meeting of the same society in 1903, at which the subject was again considered, that the correctness of the claims of the Kiel pathologists was generally admitted and the "Döhle-Heller" type of aortitis given full recognition. In the vast amount of study which since that time has been devoted to the histologic features of syphilitic aortitis, increasing emphasis has been laid on the early obliterative changes in the vasa vasorum of the adventitia as the important factor in producing the destructive lesions in the media. For this reason Scott and Saphir [23] expressed the belief that the name "mesaortitis syphilitica" is somewhat misleading and that the term "aortitis syphilitica" is to be preferred. Reuter,[24] in 1906, was the first to report the finding of spirochetes in the aortic lesion, and this discovery was promptly confirmed by Schmorl [25] and later by Wright and Richardson,[26] who recovered the organisms in five cases of aortitis. Nevertheless, later experience has shown that such positive findings are extremely rare. According to Herxheimer,[27] in 1931, only about fourteen trustworthy instances of such positive findings in syphilitic aortitis are recorded.

If further confirmation was needed, it was furnished by the results of the Wassermann test, first reported in 1908, by Fränkel and Much,[28] who demonstrated a positive reaction in nineteen of twenty-three cases in which typical mesaortitis was found at autopsy. The association of aortic insufficiency with tabes dorsalis had been noted by Berger and Rosenbach,[29] in 1879, and that of aortic aneurysm with dementia paralytica by Bordes-Pagès,[30] in 1887, but without any clear understanding as to what these associations signified. In 1901, Babinski [31] emphasized the frequency with which the early signs of tabes (changes in the pupils and deep reflexes) were found in connection with aortic aneurysm—a combination of symptoms to which Vaquez later gave the name of the "Babinski syndrome."

Before leaving the subject of aortitis, attention should be called to the important contribution made by Curschmann,[32] in 1893, to the clinical diagnosis of that disease in his paper, entitled "Sclerosis of the Thoracic Aorta." It is evident that most, if not all, of his cases were instances of syphilitic aortitis, although he did not recognize them as such. In his discussion of the symptoms he referred to sudden attacks of angina pectoris even when there was no evidence of involvement of the heart; and among the physical signs he laid emphasis on the supracardiac dulness, the prominent pulsation in the jugular notch, the frequent occurrence of pulsus differens and, especially, the peculiar accentuation and ringing quality of the aortic second sound. He was much impressed with the diagnostic importance of the change in the second sound and stated that it is probably due to the stretching of the aortic cusps from the dilatation of the root of the aorta. This, so far as I am aware, is the first notice of the peculiar change in the aortic second sound which has since been so closely identified with the diagnosis of syphilitic aortitis. Allbutt,[33] in discussing this sound, implies that it was first noted by Potain, who gave it the name "bruit de tabourka" (tabourka being the name of an Arab drum), but according to Vaquez [34] that term was applied by Potain to a peculiar change observed in the heart sound, either the first or the second, in acute endocarditis.

Concerning syphilitic disease of the heart itself, the ancient writers had little to say that will bear scrutiny. The first well established case was that reported by Ricord [35] in 1845, in which there were found a gummatous mass in the heart wall and some thickening of the endocardium. Virchow,[36] in 1858, in reporting a similar case pointed out that in the heart, as in the testicles and the liver, late syphilis showed itself either as a gummatous process or as a diffuse fibrous inflammatory change—a classification which with little modification has lasted to the present day.

With respect to the frequency of syphilitic heart disease (apart from changes resulting from aortitis) there has always been a difference of opinion between

19. Döhle: Ein Fall von eigentümlicher Aortenerkrankung bei einem Syphilitischen, Inaug. Dissert., Kiel, 1885.
20. Malmsten: Studien över Aorta-Aneurysmens Etiologi, Stockholm, 1888.
21. Döhle: Deutsches Arch. f. klin. Med. **55**: 190, 1895.
22. (*a*) Heller: Verhandl. d. deutsch. path. Gesellsch. **2**: 346, 1899. (*b*) Straub: Verhandl. d. deutsch. path. Gesellsch. **2**: 351, 1899.
23. Scott and Saphir: Tr. A. Am. Physicians **42**: 36, 1927.
24. Reuter: Munchen. med. Wchnschr. **53**: 778, 1906.
25. Schmorl: Munchen. med. Wchnschr. **54**: 188, 1907.
26. Wright and Richardson: Boston M. & S. J. **160**: 539, 1909.
27. Herxheimer, in Jadassohn, Josef: Handbuch der Haut- und Geschlechtskrankheiten, Berlin, 1931, vol. 16, pt. 2, p. 1.
28. Fränkel and Much: München med. Wchnschr. **55**: 2479, 1908.
29. Berger and Rosenbach: Berl. klin. Wchnschr. **16**: 402, 1879.
30. Bordes-Pagès: De l'artrite chronique et en particulier de l'aortite dans la paralysie générale, Thèse de Paris, no. 237, 1887.
31. Babinski: Bull. et mém. Soc. méd. d. hôp. de Paris **18**: 1121, 1901.
32. Curschmann: Arb. a. d. med.-klin. zu Leipzic, 1893, p. 248.
33. Allbutt, T. C.: Diseases of the Arteries, Including Angina Pectoris, New York, The Macmillan Company, 1915, vol. 2, p. 200.
34. Vaquez: Diseases of the Heart, Philadelphia, W. B. Saunders Company, 1924, p. 248.
35. Ricord: Gaz. d. hôp. **18**: 402, 1845.
36. Virchow: Virchows Arch. f. path. Anat. **15**: 217, 1858.

the pathologists and the clinicians. Whereas the latter have been inclined to look on cardiac syphilis as a not uncommon condition, the former, with few exceptions, have insisted on the comparative rarity of instances of disease which post mortem can be identified positively as syphilitic. This discrepancy is doubtless to be explained, in part at least, by the great difficulty in establishing proof of syphilis when the lesion found consists only of fibroid change or scars; for it seems to be the almost universal opinion among pathologists that such lesions, when syphilitic, usually present no histologic features by which they can be distinguished from fibrotic and cicatricial changes due to other causes, and that the demonstration of spirochetes in such tissues is rarely possible.

In contrast to this position are the well known views of Warthin,[37] who was convinced that the essential lesion of late syphilis is not the gumma, which is relatively rare, but "an irritative or inflammatory process, usually mild in degree, characterized by lymphocytic and plasma-cell infiltrations in the stroma, particularly about the blood vessels and lymphatics, slight tissue proliferations, eventually fibrosis and atrophy or degeneration of the parenchyma." These microscopic changes he believed to be specific and diagnostic, and frequently in the neighborhood of such small lesions he was able to demonstrate the presence of spirochetes. Using these criteria, Warthin insisted that myocardial lesions in late syphilis are extremely common and that even when no myocardial changes are visible to the naked eye the microscope may reveal "the most extensive lesions."

Fifteen years have passed since the publication of these statements by Warthin and yet, so far as I am aware, they have thus far received no confirmation or acceptance by pathologists either in this country or abroad. The whole subject has been thoroughly discussed by Clawson and Bell,[38] by Herxheimer,[27] and within the last year also by Saphir,[39] who in a histologic study of the hearts of 130 patients with syphilitic aortitis with aortic insufficiency could find no instance of myocardial change which could be interpreted as that of syphilitic myocarditis. Neither was he able, by the use of the Warthin-Starry method, to find spirochetes in any of the cases, although the method revealed artefacts that resembled spirochetes.

One can conclude only that if the lesions of late acquired syphilis are common in the myocardium they exist in forms which render them indistinguishable from those due to other and more probable causes.

A question of almost equal importance to the clinician is that relating to the frequency with which the coronary arteries are the seat of syphilitic changes. As to the almost constant encroachment on the *mouths* of the coronaries found in well developed cases of aortitis there can be no doubt,[40] but the question of the occurrence of syphilitic changes in the arteries themselves is one concerning which there is again wide discrepancy between the findings of the pathologists and the popular belief among internists. It has long been a cherished conviction of the latter that signs of coronary disease in persons in early middle life should always arouse strong suspicion that the coronary lesion is syphilitic. The importance of syphilis in coronary disease has been emphasized especially by the French writers, some of whom have gone so far as to regard syphilitic disease as the commonest cause of myocardial infarcts (Letulle).[41] Yet pathologic evidence to support the view that specific syphilitic changes are common in the course of the coronary vessels seems to be scanty (Herxheimer,[27] Turnbull,[42] Martland,[43] Saphir [39]). The assumption that manifestations of coronary disease are necessarily due to syphilitic changes in the arteries because they appear in persons known to be, or suspected of being, syphilitic is obviously unjustified in view of the accumulated mass of evidence indicating the frequency with which atherosclerotic changes in those vessels are found in persons in the fourth and fifth decades of life.

From the evidence at hand it seems safe to say that syphilis is rarely a cause of coronary disease except as it involves the proximal portion of those vessels as a part of the process of aortitis. Moritz [44] recently showed that the encroachment on the lumens of the coronary arteries in the course of syphilitic aortitis is due not solely to the aortic lesion but frequently to associated endarteritis which is limited to the first 10 or 12 mm. of the vessel.

Syphilitic disease of the pericardium and endocardium was frequently referred to by the older writers, but most of the reported instances have not withstood critical investigation. If one excludes the frequent cases in which involvement of the aortic cusps is the direct extension of a syphilitic process in the aorta and the rare instances of disease of the pulmonary valve as a part of a similar process in the pulmonary artery, only a few well authenticated examples of syphilitic valvular disease remain. Staemmler [45] recorded an instance of involvement of the anterior cusp of the mitral valve by extension of the syphilitic process from the aortic valve in a case of aortitis. A few other instances are on record of mitral disease due to extension from a syphilitic lesion in the myocardium, but Herxheimer [27] was emphatic in his assertion that anatomically proved instances of primary syphilitic changes in the mitral or tricuspid valves are unknown.

The subject of mitral stenosis should not be left without reference to a report of Amblard,[46] who, after observation of 165 cases of mitral stenosis among French soldiers during the World War, reached the conclusion that most of these cases were the result of congenital syphilis. The paper is convincing neither as to the diagnosis of mitral stenosis nor as to the evidence of syphilis.

Syphilitic changes in the pericardium have been recorded occasionally from the time of Morgagni. In almost every well authenticated case the process has been due to extension of the lesion either from the myocardium or from the aorta. In a few instances the process was gummatous; more frequently it consisted of fibrous adhesions and thickenings chiefly about the base of the heart and the great vessels; rarely it was so extensive as to cause concretio pericardii.

With respect to the involvement of the heart in the *early* stage of syphilis there are clinical observations going back to the time of Fournier,[47] in 1873, who noted various disturbances of cardiac function but

37. Warthin: Am. J. Syph. **2**: 425, 1918.
38. Clawson, B. J., and Bell, E. T.: The Heart in Syphilitic Aortitis, Arch. Path. **4**: 922 (Dec.) 1927.
39. Saphir: Syphilitic Myocarditis, Arch. Path. **13**: 266 (Feb.); 436 (March) 1932.
40. The first mention that I can find of involvement of the coronary ostia in syphilitic aortitis is that of Jakob (Aortitis Syphilitica, Inaug. Dissert., Erlangen, A. Volrath, 1891).
41. Letulle: Bull. Soc. anat. de Paris **85**: 56, 1910.
42. Turnbull: Quart. J. Med. **8**: 201, 1915.
43. Martland: Am. Heart J. **6**: 1, 1930.
44. Moritz, A. R.: Syphilitic Coronary Arteritis, Arch. Path. **11**: 44 (Jan.) 1931.
45. Staemmler: Centralbl. f. allg. Path. u. path. Anat. **48**: 177, 1930.
46. Amblard: Bull. et mém. Soc. méd. d. hôp. de Paris **45**: 753, 1921.
47. Fournier: Leçons sur la syphilis, étudié plus particulierement chez la femme, Paris, A. Delahaye, 1873, p. 800.

ascribed them to nervous influences rather than to anatomic changes. With the growth of experimental evidence as to the very early invasion of the lymph and blood streams by the exciting organisms, it has become increasingly evident that reactive changes in the viscera begin early, and that in the case of the heart symptoms of such early reactive changes may appear. As confirmation by autopsy has rarely been possible in such cases, the interpretation of the various minor subjective symptoms and physical signs has depended on the clinical judgment and discrimination of the individual observer, and as might be expected under such circumstances, the conclusions of different writers have varied greatly. Grassmann,[48] for example, found evidences of what he regarded as involvement of the heart in more than two thirds of the 288 cases studied.

In the reports of L. Braun,[49] Amelung and Sternberg,[50] Brooks,[51] Howard,[52] Lukomski [53] and others the incidence of cardiac symptoms in the early stage varied between 8 and 33 per cent. On the other hand, in a very careful and complete study of the heart in fifty cases of early syphilis Turner and White [54] could find no definite clinical evidence of disease of the heart or aorta in any case.

There is, however, anatomic evidence to prove that occasionally the type of lesion characteristic of the late stage of syphilis (e. g., aortitis and aneurysm) may occur very early—even within a few months of the date of the infection. Brooks [55] cited two such cases, and records of similar instances are found scattered through the literature. Schlesinger [56] stated that during the World War and the "hunger years" it was not uncommon to find within a few months after infection vascular and nervous manifestations that ordinarily were to be seen only many years later as phenomena of the late stage of syphilis.

Involvement of the pulmonary artery in late syphilis has long been recognized as an occasional but rare phenomenon. If Paré's statement, already quoted, is to be credited, to him belongs the distinction of having first described such a case.

The rarity of fully established instances of the disease may be seen from the careful study of Karsner [57] which has just appeared. He included among the proved cases nine in which there was either simple formation of gummas or gummatous arteritis and eleven, including his own, in which the process was of the productive-cicatricial type commonly found in the aorta. These twenty cases of syphilitic disease constitute only a small fraction, of course, of the number of cases reported as such in the literature. Six of the twenty cases were associated with saccular aneurysm, and permanent dilatation of some degree was found in all the remaining cases. In about one half of the cases there was concomitant syphilitic aortitis, but the evidence is not conclusive that in such cases the lesion in one vessel is due to extension from the other. Recently Laubry and Thomas [58] (and others) have attempted to develop the clinical picture of syphilis of the pulmonary artery and have expressed the belief that in a certain number of such cases a clinical diagnosis is possible.

Syphilis of the pulmonary artery cannot be discussed without reference to its relationship to the syndrome known as Ayerza's disease. At the present time this relationship is most uncertain, and there is increasing evidence to show that sclerosis of the smaller branches of the pulmonary artery, which seems to be the essential lesion underlying the clinical picture of Ayerza's disease, may be due to various causes other than syphilis. Cheney's [59] suggestion, therefore, that the term "Ayerza's disease" be restricted to those cases in which the syndrome is due to syphilitic changes in the pulmonary artery seems hardly logical.

In considering the incidence of syphilitic disease in the arteries other than the aorta, a distinction must be made between the lesions involving the orifices of the vessels given off from the aorta as a part of the disease process in the aorta and lesions occurring in the course of the arteries and independent of the aortitic process. Changes of the former type have long been known to be common. Snow,[60] of Albany, N. Y., in 1880, made one of the early reports under the title, "Syphilitic Degeneration of the Arteries as a Cause of Aneurysm"; one of his two cases of aneurysm showed also occlusion of the left subclavian artery. Straub,[22b] in 1899, in recording his large series of autopsies on patients with dementia paralytica, emphasized especially the tendency in aortitis to encroachment on the mouths of the large arteries given off from the arch, as well as on those of the coronary arteries. Turnbull [42] in 175 autopsies in cases of syphilitic aortitis found the orifice of the innominate artery involved 23 times and that of the left subclavian artery, 10 times. Töppich [61] spoke of the frequent narrowing of the orifices of the intercostal arteries and of the possible clinical significance of this. Information concerning the incidence of syphilitic disease in the *course* of the arteries has been much less certain. The pathologists generally have thought that such syphilitic changes were uncommon, although the comparative frequency of aneurysm in the larger arteries would seem to speak to the contrary. Warthin [62] found simple atherosclerosis much commoner in syphilitic patients than in nonsyphilitic patients of corresponding age and regarded the condition as related to syphilis, although probably not a result of the direct action of the spirochetes. The latest study of this subject is that of Saphir,[63] who took sections of most of the larger arteries in fifty cases which at autopsy presented syphilitic lesions in the aorta. Among these fifty cases characteristic syphilitic changes were found in the innominate artery in thirty-three, in the carotid artery in twenty-nine, in the superior mesenteric artery in ten and in the femoral artery in seven. Changes were found in the subclavian artery in fifteen of twenty-nine cases.

In the medium-sized and smaller arteries of the extremities characteristic syphilitic changes, with marked proliferative changes in the intima and a tendency to thrombosis, have been found occasionally, but in this instance as in so many others there is a difference of opinion between the pathologists and the clinicians as to the frequency of the changes. Some of

48. Grassmann: Deutsches Arch. f. klin. Med. **68:** 455, 1900; **69:** 58 and 264, 1901.
49. Braun: Wien. med. Wchnschr. **77:** 83, 122 and 150, 1927.
50. Amelung and Sternberg: Deutsches Arch. f. klin. Med. **145:** 34, 1924.
51. Brooks: Am. J. Syph. **5:** 217, 1921.
52. Howard: Am. J. M. Sc. **167:** 266, 1924.
53. Lukomski: Ztschr. f. klin. Med. **109:** 725, 1929.
54. Turner, K. B., and White, P. D.: The Heart and the Aorta in Early Syphilis: Clinical Observations, Arch. Int. Med. **39:** 1 (Jan.) 1927.
55. Brooks: Am. J. M. Sc. **146:** 513, 1913.
56. Schlesinger in Jadassohn: Handbuch der Haut- und Geschlechtskrankheiten, Berlin, Julius Springer, 1931, vol. 16, pt. 2, p. 272.
57. Karsner, H. T.: Productive-Cicatricial Syphilitic Disease of the Pulmonary Artery, Arch. Int. Med. **51:** 367 (March) 1933.
58. Laubry and Thomas: Bull. et mém. Soc. méd. d. hôp. de Paris **51:** 9, 1927.
59. Cheney: Am. J. M. Sc. **174:** 34, 1927.
60. Snow: M. Rec. **18:** 229, 1880.
61. Töppich: Berl. klin. Wchnschr. **57:** 440, 1920.
62. Warthin: New York M. J. **115:** 69, 1922.
63. Saphir: Am. J. Path. **5:** 397, 1929.

the cases of syphilitic disease of the smaller arteries of the legs have clinically borne a close resemblance to thrombo-angiitis obliterans, but Buerger,[64] along with most other writers, was convinced that syphilis plays no part in the etiology of that disease.

Syphilis of the arteries of the brain remains the commonest and the best studied example of the syphilitic process in the medium-sized and small arteries. In spite of the fact that it was the first form of syphilitic vascular disease to receive general recognition, thanks to the monograph of Heubner, it was nevertheless many years later before pathologists were in agreement as to certain fundamental facts concerning it. The question as to whether the change actually began as a proliferative process in the intima, as Heubner believed, or whether the proliferation of the cells of the intima was secondary to an inflammatory process in and about the vasa vasorum of the adventitia, as was maintained by von Baumgarten and many others, was long in being settled. The final judgment seems to have been in favor of the essential unity of all syphilitic disease in the arteries as a process which proceeds from without inward through the primary involvement of the nutritive vessels of the adventitia.

Knowledge concerning the manifestations of syphilis in the *veins* was for a long time limited to occasional clinical reports of instances of phlebitis of one of the superficial vessels which occurred in patients with other evidences of syphilis or which in patients suspected of having syphilis responded promptly to antisyphilitic treatment.

Credit for the first trustworthy record of this kind is given to a British army surgeon, Girdwood,[65] who reported three cases. In 1898, Proksch [66] was able to assemble 107 instances of syphilis of the larger veins, some of them of doubtful validity. Much the most important contribution to the subject, however, was made by E. Hoffmann,[67] in 1905.

The forms of syphilis of the veins of chief interest to the clinician are those which belong to the secondary stage of the disease and which occasionally are seen even before the appearance of the cutaneous eruptions. They involve almost exclusively the subcutaneous or cutaneous veins. Hoffmann distinguished three types, diffuse (*strangförmige*) phlebitis, nodular periphlebitis (nodose syphilid) and erythema nodosum syphiliticum. Subsequent studies have confirmed the careful work of Hoffmann and have made it clear that these syphilitic involvements of the veins of the secondary period have considerable clinical importance.

The venous lesions of late syphilis appear to be much less common and are certainly much less characteristic. The deep veins of the trunk are the ones usually affected, and the lesion apparently may either be primary endophlebitis or consist of periphlebitic gummatous inflammation which is often an extension from neighboring syphilitic disease. The interesting and rare obliterating endophlebitis of the hepatic veins seems to be, in most instances at least, a syphilitic process, and the same is true of certain of the cases of primary sclerosis of the portal vein.

What has been said thus far has referred entirely to the changes wrought in the cardiovascular system by the acquired form of syphilis. There is time now for only a word concerning the knowledge of the effects of congenital syphilis on the circulatory system. In general, it may be said that that knowledge is in some respects on a firmer basis in the case of congenital syphilis than in the case of the acquired form. Proof of the specific nature of the changes has been easier to obtain because of the relative frequency with which the spirochetes have been found and because of the rarity at that time of life of lesions due to other causes which might be confused with those due to syphilis.

The circulatory lesions produced by acquired syphilis for the most part have their counterparts in those which are found in congenital syphilis. Myocardial changes are infrequent and consist usually of a diffuse or a circumscribed form of myocarditis. Actual gummas are rare. The commonest lesion is aortitis, which corresponds in all essentials to the early stage of the acquired type and can be recognized often in syphilitic infants who are stillborn or who die soon after birth. In the late congenital form of the disease the clinical picture of aortitis, of aortic aneurysm and of aortic insufficiency, though rarely seen, resembles closely that of acquired syphilis. Among the medium-sized and smaller arteries, those of the brain have been most often found involved, and instances of such involvement are recorded even in very young children.

Knowledge that the vessels of the umbilical cord may be the seat of syphilitic disease dates from 1870 (Oedmannsson [68]), and this subject since then has been given much study. To the close relationship between the umbilical vein and the liver is ascribed the great frequency of involvement of the liver in congenital syphilis, and the same explanation is offered for the rare instances of syphilitic peripylephlebitis found among syphilitic children. The relation of obliterating endophlebitis of the hepatic veins to congenital syphilis has been emphasized in a recent study by Beitzke.[69] Types of phlebitis corresponding to those seen in the secondary stage of acquired syphilis have not been recorded in connection with the congenital form.

This attempt to review briefly the steps by which has grown the present knowledge of the relation of syphilis to disease of the cardiovascular system has resulted in a mere sketch of some of the more conspicuous landmarks along the way. Many important facts and many important names have not been mentioned. What has been said, however, must have made clear the devastating effects of this wholly preventable infection on the vital organs of circulation. It would be easy, if time permitted, to muster statistics showing the distressing prevalence of cardiovascular syphilis and the size of the problem in preventive medicine that it presents. But statistics are not necessary. All physicians know that syphilis heads one of the three great etiologic groups of cardiovascular disease. They know that it accounts for from one sixth to one fourth of the deaths from such diseases among adults. And, finally, they know that at the present time the syphilitic group is the only one of the three great classes for which preventive measures are known and are available. Are they making the most of this knowledge? Are they really doing everything that is reasonably possible to prevent syphilis itself or to prevent these grave consequences of syphilis?

The responsibilities are so great and the consequences of success or failure in such efforts are so momentous that these questions must be asked—and answered.

64. Buerger: The Circulatory Disturbances of the Extremities, Philadelphia, W. B. Saunders Company, 1924, p. 277.
65. Girdwood: Lancet **1**: 619, 1860.
66. Proksch: Ueber Venen-Syphilis, Bonn, P. Hanstein, 1898.
67. Hoffmann: Arch. f. Dermat. u. Syph. **73**: 39 and 245, 1905.
68. Oedmannsson, cited by Evelbaur in Jadassohn, J.: Handbuch der Haut- und Geschlechtskrankheiten, Berlin, Julius Springer, 1931, vol. 16, pt. 2, p. 262.
69. Beitzke: Beitr. z. path. Anat. u. z. allg. Path. **84**: 2, 1930.

SOME DISORDERS OF THE ESOPHAGUS

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The discovery of new clinical syndromes reveals a curious feature of the physician's psychology. As soon as his attention is drawn to the existence of such a syndrome he finds cases with increasing frequency and wonders how such an obvious condition could have escaped his observation in the past. Thus duodenal ulcer was, with few exceptions, never recognized before 1908, when Moynihan at last succeeded in convincing physicians that it was a very common disorder with characteristic symptoms, which Abercrombie had described to an unlistening profession eighty years before. The history of coronary thrombosis is a more recent illustration of the same phenomenon.

I propose to discuss here four esophageal syndromes, all of which are still insufficiently recognized, and three of which were quite unknown to me at the time of my last visit to America in 1919. Every physician will, I feel sure, recognize them with increasing frequency during the next few years and will wonder what can have happened to the cases which came under his care and which he failed to recognize in the past.

THE DYSPHAGIA OF ANEMIC WOMEN

CASE 1.—A woman, aged 41, consulted me in 1926 on account of difficulty in swallowing. Roentgen studies and esophagoscopy did not reveal any organic obstruction, and watching her during a meal showed that the dysphagia was the result of incoordination of the muscles involved in the initiation of the act of deglutition. Her tongue was sore and showed well marked glossitis, the surface being red, smooth and glossy, owing to complete atrophy of the papillae. She was anemic, with 3,540,000 red corpuscles per cubic millimeter, and 48 per cent hemoglobin, and her spleen was enlarged. Her condition improved greatly as a result of treatment of the glossitis continued with the administration of large doses of iron and ammonium citrate.

I doubt whether I should have paid much attention to this remarkable symptom complex had I not just read a paper by Vinson [1] in which he described a number of similar cases observed by Plummer and himself, though curiously enough he did not refer to the glossitis. I [2] described the case in a short paper under the rather unfortunate name of the "Plummer-Vinson Syndrome"—unfortunate because I subsequently discovered that excellent accounts of the condition, though without any details as to the type of anemia present, had been published in 1919 by Brown Kelly [3] and by Paterson.[4] These papers had appeared in the *Journal of Laryngology* and had thus escaped the attention of internists—one disadvantage of specialization in medical literature.

I have now seen a considerable number of cases, and the condition has gradually become well recognized in England, where papers on the subject have been written by Ryle,[5] Jones and Owen,[6] Cameron,[7] and Witts.[8]

The anemia is almost always of the hypochromic microcytic type; exceptionally it is addisonian. It is generally associated with achlorhydria or hypochlorhydria, and as the condition apparently occurs only in middle-aged women, the whole syndrome may, as Witts has suggested, be regarded as a complication of simple achlorhydric anemia. In severe cases the anemia is associated with splenomegaly, as Plummer and Vinson first pointed out, but in mild cases this is generally absent.

Atrophic glossitis is constantly present. It differs in no respect from that described in 1900 by William Hunter as characteristic of Addison's (pernicious) anemia. The tongue feels sore in the acute phases, but atrophy of the filiform papillae may occur without any subjective symptoms. The tongue finally becomes smooth and glossy. This condition of the mucous membrane extends to the pharynx and entrance into the esophagus.

The dysphagia is a result of disturbance in the neuromuscular mechanism, which causes the relaxation of the normally closed pharyngo-esophageal sphincter formed by the cricopharyngeus muscle directly after the food has been propelled into the pharynx by the tongue. Absence of this relaxation or "achalasia," the significance of which will be discussed presently, is sufficient to cause dysphagia, though in some cases spasm may replace the normal relaxation. The atrophic inflammation of the mucous membrane in the neighborhood must be the cause of this neuromuscular disorder. Either the nerve endings are atrophied and fail to convey the afferent impulses, which result in the reflex relaxation of the sphincter, or the ganglion cells of Auerbach's plexus are involved and fail to convey the efferent impulse to the sphincter. Suzman [9] was unable to find any abnormalities in the plexus in a patient who had died from mediastinitis and empyema following the passage of an esophagoscope; as, however, the part in which such changes would be most likely to be present was disorganized as a result of acute inflammation following the perforation, this cannot be regarded as conclusive evidence against the view that organic disease of the nervous tissue at the pharyngo-esophageal junction is the cause of the dysphagia. In the earlier stages the neuromuscular tissues may be in a condition of abnormal irritability so that spasm instead of achalasia results.

Plummer and Vinson regarded the dysphagia as hysterical and the anemia and splenomegaly the result of secondary malnutrition, though dysphagia due to other causes does not lead to splenomegaly and only rarely to anemia. They had failed to observe the constant association of the dysphagia and anemia with glossitis, which is a common accompaniment of simple achlorhydric anemia in the absence of dysphagia; the latter condition, when it is present, must be caused by spread of the inflammation to the pharyngo-esophageal junction.

There is no doubt that many of the patients are of a nervous temperament and that the condition may be exaggerated by autosuggestion. But this is also true for other conditions, which I shall presently describe as causes of dysphagia, although they are quite certainly organic in origin.

Read before the New York Academy of Medicine, May 17, 1933.

1. Vinson, P. P.: Minnesota Med. **5**: 107 (Feb.) 1922.
2. Hurst, A. F.: Guy's Hosp. Rep. **76**: 426 (Oct.) 1926.
3. Kelly, A. B.: J. Laryng., Rhin. & Otol. **34**: 285 (Aug.) 1919.
4. Paterson, D. R.: J. Laryng., Rhin. & Otol. **34**: 289 (Aug.) 1919.
5. Ryle, J. A.: Guy's Hosp. Rep. **77**: 33 (Jan.) 1927.
6. Jones, A. M., and Owen, R. D.: Brit. M. J. **1**: 256 (Feb. 18) 1928.
7. Cameron, J. A. M.: Quart. J. Med. **22**: 43 (Oct.) 1928.
8. Witts, L. J.: Guy's Hosp. Rep. **81**: 193 (April) 1931.
9. Suzman, M. M.: Syndrome of Anemia, Glossitis and Dysphagia, Arch. Int. Med. **51**: 1 (Jan.) 1933.

The anemia is rapidly cured by the same treatment as that required for uncomplicated cases of simple achlorhydric anemia—the administration of 30 grains (2 Gm.) of iron and ammonium citrate three times a day after meals—and the condition of the tongue improves with liver extract. The dysphagia can be cured by the passage of mercury bougies of increasing diameter; occasionally a single treatment is sufficient, though in cases in which spasm and not achalasia is present considerable difficulty may be experienced in passing the instrument.

ACHALASIA OF THE CARDIAC SPHINCTER (SO-CALLED CARDIOSPASM)

A condition in which enormous dilatation and hypertrophy of the esophagus occurs without organic obstruction has long been recognized by morbid anatomists, and for many years the theory first suggested by Mikulicz in 1888 that the condition was due to spasm of the cardiac sphincter was widely accepted. The investigation of a case in 1913 led me, however, to reject this theory. I found that a rubber tube, filled with mercury dropped into the stomach without meeting any appreciable resistance in its passage though the cardia, could be withdrawn with equal ease, in striking contrast with the firm resistance offered to the examining finger by a spasmodically contracted anal sphincter in cases of anal ulcer and with the grip exerted on the finger when it has once entered the rectum. Moreover, the cardiac sphincter has never been found to be hypertrophied after death, and in operations in intractable cases the part of the sphincter within the abdomen is of normal thickness or even rather atrophied, although spasm lasting continuously for many years would certainly lead to hypertrophy. It seemed

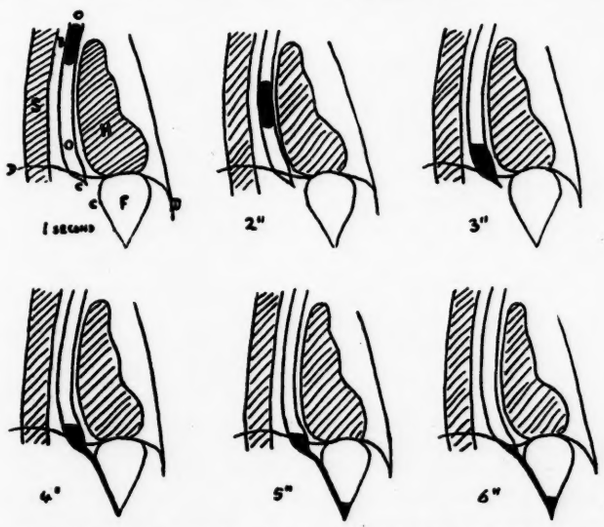

Fig. 1.—Passage of a bolus of barium-containing food (*B*) through the esophagus (*O O*) as seen with roentgen rays in successive seconds after swallowing. *S*, spine; *H*, heart; *D D*, diaphragm; *C C*, cardiac sphincter; *F*, fundus of stomach.

to me much more probable that the obstruction was caused by absence of the relaxation of the sphincter, which normally occurs when, in the act of swallowing, a peristaltic wave reaches it (figs. 1 and 2). A sphincter muscle differs from other muscles in having relaxation as its normal activity; at rest its postural tone is such that it completely obliterates the lumen of the passage which it surrounds, and in activity its relaxation opens the passage and removes the obstruction previously present. Although the cardiac sphincter is not described in the majority of textbooks on anatomy, there is no doubt from anatomic and radiologic studies that one exists. It is normally about an inch in length, its upper end being generally on a level with the hiatus oesophageus, but it is occasionally lower than this and in rare cases the whole of the sphincter is thoracic, with the cardiac orifice of the stomach in contact with

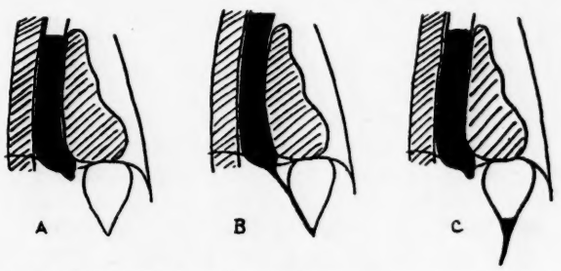

Fig. 2.—Esophagus in achalasia of cardia. *A*, column of barium-containing food 8 inches high, above closed cardia. *B*, after additional quantity of food has been swallowed, so that the taller column, being heavier, opens cardia and allows surplus to enter stomach. *C*, return to condition of *A* after surplus of food over the 8 inch column has entered stomach.

the diaphragm. So long as no short synonym of "absence of relaxation of the cardiac sphincter" was available, it was clear that the old name of cardiospasm would hold the field, in spite of the fact that there was no evidence that spasm was ever present in uncomplicated cases. I therefore asked Sir Cooper Perry to invent a name; he suggested the excellent word achalasia, derived from α, absence of, and χάλασις, relaxation.

In 1913, after I had demonstrated a case of achalasia of the cardia at the Royal Society of Medicine, Sir Humphry Rolleston told me that he had suggested a similar explanation when showing a postmortem specimen to the Pathological Society in 1896. I subsequently discovered that Dr. Max Einhorn[10] had anticipated Sir Humphry by eight years. Now Dr. Ralph Major of the University of Kansas has drawn my attention to the following remarkable account of achalasia of the cardia by Thomas Willis in his Pharmaceutice rationalis, which was published in 1672, and in which both the idea of achalasia and the modern treatment are foreshadowed:

> No less will a very rare case of a certain man of Oxford show, an almost perpetual vomiting to be stirred up by the shutting up of the left orifice. A strong man, and otherwise healthful enough, labouring for a long time with often vomiting, he was wont, very often, though not always, presently to cast up whatsoever he had eaten. At length the disease having overcome all remedies, he was brought into that condition, that growing hungry he would eat until the oesophagus was filled up to the throat, in the meantime nothing sliding down into the ventricle, he cast up raw (or crude) whatsoever he had taken in: when that no medicines could help and he languished away for hunger, and every day was in danger of death, I prepared an instrument for him like a rod, of a whale bone, with a little round button of sponge fixed to the top of it; the sick man having taken down meat and drink into his throat, presently putting this down in the oesophagus, he did thrust down into the ventricle, its orifice being opened, the food which otherwise would have come back again; and by this means he hath daily taken his substance for fifteen years and doth yet use the same machine, and is yet alive and well

10. Einhorn, Max: Med. Rec. **33**: 751, 1888.

who would otherwise perish for want of food. Without doubt in this case the mouth of the stomach being always closed, either by a tumour or palsie, nothing could be admitted into the ventricle unless it were violently opened.

It seemed to me likely that the achalasia was not a purely functional condition but would prove to be the result of some organic change involving the neuromuscular control of the sphincter. In 1925 Dr. Geoffrey Rake,[11] at that time a medical student at Guy's Hospital, proved that this was the case. At a postmortem on a man who died from pneumonia without having suffered from dysphagia, the esophagus was found to be hypertrophied but not dilated; he thought that this might represent the earliest stage of the condition, in which the hypertrophied esophagus was still able to overcome the resistance offered by the sphincter, so that no dilatation had yet occurred. With the help of the late Prof. Adrian Stokes he demonstrated a round-cell infiltration of Auerbach's plexus at the lower end of the esophagus (fig. 3). During the next few years he had the opportunity of examining Auerbach's plexus in ten specimens obtained from various sources, and without exception degenerative changes resulting in more or less complete disappearance of the ganglion cells were found (fig. 5). Rake's results have since been confirmed by Cameron[12] in eight cases, and by Mosher and McGregor[13] and by Beattie[14] in one each. It is clear, therefore, that this apparently functional condition is really the result of organic disease of Auerbach's plexus; achalasia of the cardia is in fact the only well established example of a localized disease of the autonomic nervous system.

The closed cardiac sphincter can support an 8-inch column of water. Consequently in achalasia the dilated esophagus is constantly filled with a mixture of food and saliva 8 inches high. When more food is taken, the cardia opens and allows some of the esophageal contents to enter the stomach, but it closes again directly the column falls to the 8 inch mark (fig. 2*B*). Owing to the fact that the pharyngo-esophageal sphincter is normally closed, nothing escapes from the dilated esophagus when the patient lies down.

TREATMENT

Achalasia of the cardia can be cured in a large majority of cases by the use of a wide tube containing mercury.[15] This treatment is quite devoid of danger in contrast with the Russell-Plummer dilator, which has led to a number of deaths from mediastinitis and peritonitis. In the very rare cases in which the dilatation is so extreme and has led to such an increase in the length as well as in the diameter of the esophagus that a part of it reaches below the entrance into the cardiac sphincter, it may prove impossible for the mercury bougie to find its way into the stomach, and it consequently coils up within the esophagus. In such cases the sphincter should be stretched from below by fingers introduced through the stomach, as first practiced by Mikulicz in 1882; this operation gives much better results than longitudinal incision of the sphincter (Heller) or esophagogastrostomy (Exner), both of which I have known to fail completely.

CHRONIC PEPTIC ULCER OF THE ESOPHAGUS

CASE 2.—A woman, aged 35, consulted me in May 1932 on account of a burning pain below the xiphisternum which occurred while eating. It had been present with intervals of complete freedom for six years but had become more constant during the last twelve months. The food felt as if it stuck at the cardia before passing into the stomach, and this sometimes led to effortless vomiting. The pain, which sometimes passed through to the back, was relieved by alkalis and could be completely prevented by taking only fluid food. Roentgen studies had been made in 1927 and again in 1931, but nothing abnormal was found. A diagnosis of gallstones was made on the latter occasion, but at operation the gallbladder and other abdominal organs appeared to be healthy and the appendix was removed. When I saw her she was much emaciated and the hemoglobin percentage was only 64. The possibility of achalasia of the cardia was considered, but a roentgen examination with the usual opaque fluid showed no delay in the passage into the stomach and the esophagus appeared to be normal. On reconsideration, the presence of pain, which is rare in achalasia, its radiation to the back, and its disappearance with fluid food made a diagnosis of achalasia improbable. As pain was present only with solid food, a solid meal mixed with barium was given. Pain was produced, and a remarkable picture was obtained: the cardiac sphincter, recognized by the presence of two longitudinal folds, was seen to be widely open, and immediately above it was a round shadow, which could be nothing else but the crater of a large ulcer at the extreme lower end of the esophagus, just proximal to the sphincter; above the ulcer the lumen was narrowed as a result of a constant spasm, which led to a moderate degree of stasis in the esophagus but was insufficient to cause any secondary dilatation. The diagnosis was confirmed by esophagoscopy and by the presence of occult blood in the stools.

Failure to recognize the true nature of the condition may have a deplorable effect on the patient's nervous system:

CASE 3.—A man, aged 78, had suffered from "gas pains" since 1926. In 1929 and again in December 1931 he had a small hematemesis; on both occasions roentgen studies were made but nothing beyond an excess of gas in the stomach was discovered. Early in 1932 he began to suffer from dysphagia with excessive salivation; he experienced difficulty in initiating the act of swallowing, but he recognized that there was an obstruction at the entrance into the stomach, as the passage seemed to "shut up" in a painful spasm whenever food reached it, this being followed by regurgitation of the food with an excess of mucus. A roentgen examination again showed no abnormality except an enormous gas bubble in the stomach, which caused the left half of the diaphragm to be elevated above the right, corresponding with the fact that he complained of very painful flatulence with complete inability to belch and so to obtain relief. His condition was regarded as hysterical and he was treated by various forms of psychotherapy on the continent, in America and in England, but without success. Indeed, his condition became progressively worse, and when I first saw him in January 1933 he was in a deplorable state of nervousness and was terrified at the mere idea of eating. When a meal was brought into his room, his face became anxious and his hands shook. Several minutes elapsed before he could persuade himself to lift the fork in his trembling hand to his lips; he masticated much longer than was necessary in order to put off the moment of swallowing as long as possible, at the same time shaking his head. He had lost much weight and strength and was extremely depressed.

As it seemed impossible that such severe dysphagia could be purely nervous in origin, especially in view of the history of the hematemesis, a further roentgenologic examination was made, and Dr. P. J. Briggs succeeded in demonstrating the presence of a deep chronic ulcer in the extreme lower end of

11. Rake, G. W.: Guy's Hosp. Rep. **76**: 145 (April) 1926; **77**: 141 (April) 1927.
12. Cameron, J. A. M.: Oesophagectasia in a Child, Arch. Dis. Childhood **2**: 358 (Dec.) 1927.
13. Mosher, H. P., and McGregor, G. W.: Ann. Otol., Rhin. & Laryng. **37**: 12 (March) 1928.
14. Beattie, W. J. H. M.: Achalasia of the Cardia, St. Bartholomew's Hosp. Rep. **64**: 39, 1931.
15. Hurst, A. F., and Rake, G. W.: Quart. M. J. **23**: 491 (July) 1930.

the esophagus (fig. 6). Endoscopic examination showed the presence of well marked esophagitis, but a persistent spasm near the lower end of the esophagus prevented the ulcer itself from being seen. A large quantity of occult blood was constantly present in the stools. The enormous gas bubble in the stomach was clearly due to the esophageal spasm caused by the ulcer interfering with the escape of swallowed air upward, just as it interfered with the passage of food downward.

Both patients were treated with a milk diet, alkalis and atropine and rapidly lost the pain and dysphagia. The old man soon became comparatively happy, but the physical signs of fear, which occurred when food was brought into his room, persisted in a lesser degree after the disappearance of the associated emotion, presumably as a result of a conditioned reflex. The ulcers became much smaller in both cases, but after many weeks they had not healed, apparently owing to the associated spasm in the woman and owing to the development of cicatricial narrowing in the man, and eventually gastrostomy was performed. This resulted in complete healing with disappearance of the occult blood. The woman's stoma was allowed to close and she was able to swallow well chewed food without difficulty, in spite of the development of a slight stricture at the site of the ulcer. Complete obstruction developed in the man, but this would probably have been overcome by gradual dilation had not a rapidly fatal attack of acute mania developed.

From my experience of these two cases and one other case I shall in future advise a temporary gastrostomy directly after the diagnosis has been made, unless the patient is seen within a year of the development of symptoms, when a fluid diet with alkalis and atropine is likely to lead to a cure, as shown by the experience of Friedenwald and his colleagues.[16] If cicatricial stenosis should occur, this can be treated by gradual dilation before the stoma is allowed to close.

Peptic ulcer of the esophagus is generally regarded as a very rare condition. Stewart observed a single case in 10,000 consecutive postmortems, and Tileston was able to collect only eight cases from the literature in 1909. Twenty years later, Stewart and I[17] collected eleven more, excluding a remarkable series observed by Chevalier Jackson,[18] who had seen twenty-one active ulcers and scars of sixty-seven healed ulcers in 4,000 endoscopic examinations on patients with esophageal disease. Jackson believed that the condition would be found to be not uncommon if more carefully looked for, and Friedenwald, Feldman and Zinn came to the same conclusion, as they were able in 1929 to publish records of no less than thirteen cases from their own practice in which a diagnosis had been made with roentgenography and esophagoscopy. They are the only authors who have hitherto succeeded in visualizing the crater of an esophageal ulcer with the x-rays, though spasm was observed in several of Jackson's cases. Their description of the symptoms agrees closely with those given by Jackson and the earlier reporters of single cases, and also with the cases here reported. Discomfort or pain occurs under the lower extremity of the sternum while solid food is being eaten and less frequently half an hour or more after meals. It often radiates to the back. At first it lasts for only a few minutes and is relieved by alkalis, but later it is prolonged and followed by regurgitation, so that the patient often becomes afraid to eat. Hematemesis, which may be severe and fatal, is a common complication, but perforation into the mediastinum, pericardium or peritoneum is the usual cause of death. A fibrous stricture may develop and lead to more or less complete obstruction.

An esophageal ulcer has all the anatomic characteristics of a chronic ulcer of the stomach or duodenum. In 1899 Fraenkel[19] noticed the presence of heterotopic mucous membrane in the esophagus of a patient dying from an esophageal ulcer, and the same observation was made by Tileston[20] in 1906 and by Stewart and Hartfall[21] in 1929. The heterotopic mucous membrane probably secretes acid gastric juice, which collects in the lower extremity of the esophagus immediately above the closed sphincter, and in the course of time an erosion and finally a chronic ulcer develops. This would explain why the ulcer is always situated just above the sphincter. The condition is analogous with the peptic ulcers occasionally found in Meckel's diverticula, which

Fig. 3.—Section of a normal ganglion of Auerbach's plexus in the lower end of the esophagus; × 50.

are also always associated with the presence of ectopic gastric mucous membrane.

THE RECURRENT HIATUS HERNIA SYNDROME OF VON BERGMANN

In May 1931 I visited Prof. Gustav von Bergmann's clinic at the Charité in Berlin. I found that he was much interested in a particular variety of diaphragmatic hernia,[22] a small and generally intermittent form, which he regarded as of great frequency and as responsible for the production of a variety of symptoms. Although Friedenwald and Feldman[23] of Baltimore described many of the clinical features of this condition and the special radiologic technic required for its demonstration in 1925, it has remained to a great extent unrecognized, and it has not been clearly separated

16. Friedenwald, Julius; Feldman, Maurice, and Zinn, W. F.: Tr. Am. Gastro-Enterol. A. **31**: 93, 1929.
17. Hurst, A. F., and Stewart, M. J.: Gastric and Duodenal Ulcer, London, Oxford University Press, 1929, p. 498.
18. Jackson, Chevalier: Peptic Ulcer of the Esophagus, J. A. M. A. **92**: 369 (Feb. 2) 1929.
19. Fraenkel, A.: Wien. klin. Wchnschr. **12**: 1039, 1899.
20. Tileston, Wilder: Am. J. M. Sc. **132**: 240, 1906.
21. Sewart, M. J., and Hartfall, S. J.: J. Path. & Bact. **32**: 9 (Jan.) 1929.
22. von Bergmann, Gustav, and Goldner, Martin: Funktionelle Pathologie, Berlin, Julius Springer, 1932, p. 68.
23. Friedenwald, Julius, and Feldman, Maurice: Am. J. M. Sc. **170**: 263 (Aug.) 1925.

from other forms of hernia through the esophageal hiatus in the recent radiologic literature on diaphragmatic hernia.

In contrast with the familiar type of nontraumatic diaphragmatic hernia, which results from congenital shortness of the esophagus and of which I have seen thirteen cases in the last ten years, the esophagus in this variety of hernia is of normal length. The tissues that surround it as it passes through the hiatus oesophageus must be abnormally lax. This may sometimes perhaps be congenital, but the greatly increased frequency in elderly persons suggests that it is due mainly to senile changes in the tissues. Under these conditions a slight increase of intra-abdominal pressure is sufficient to push a small segment of the stomach in the immediate neighborhood of the cardia through the hiatus into the thorax. It is generally accompanied by the lower extremity of the esophagus, but occasionally the latter still passes into the abdomen behind, in front of or at either side of the hernia.

The hernia is generally intermittent, but it may become fixed and permanent. Intermittent herniation is produced when the intra-abdominal pressure is increased when the patient bends forward or is in the prone position, in which case the pressure immediately below the hiatus is at its highest.

A hiatus hernia should always be considered as a possible diagnosis when upper abdominal symptoms of doubtful origin occur chiefly or only at night or are associated with slight dysphagia or anginoid symptoms. They generally occur in attacks with periods of complete freedom. Pain or a feeling of pressure may be

Fig. 4.—Section of a normal ganglion of Auerbach's plexus in the lower end of the esophagus, showing cell infiltration and degeneration of ganglion cells in achalasia of the cardia with muscular hypertrophy but no dilatation of the esophagus; × 50.

felt immediately after swallowing under the xiphisternum or a little to the left and occasionally in the back; it may radiate to the heart and to the left shoulder and arm and may closely simulate angina. Acid regurgitation is common; vomiting is sometimes the only symptom. The rapid distention of the stomach which follows aerophagy and the drinking of solution of sodium bicarbonate or an aerated drink generally gives relief. The attacks are in most cases mainly or exclusively nocturnal and disappear when the patient sits up; severe pain in the night may simulate gallstone symptoms. Intermittent dysphagia may occur. The attacks occasionally follow an emotional upset. The symptoms may be so slight that they are discovered

Fig. 5.—Section through the cardiac end of the esophagus of a patient with achalasia, showing *R*, round-cell infiltration, and *F*, fibrosis, of Auerbach's plexus, with complete disappearance of ganglion cells, none being seen in any of 250 serial sections; × 50.

only on cross-questioning, and occasionally there are no symptoms at all, the condition being an accidental discovery.

The hernial sac may become inflamed or ulcerated, with the production of hematemesis or occult blood in the stools, and inflammation or ulceration may also occur in the esophagus, which may become slightly dilated above the hernia.

Moore and Kirklin [24] of the Mayo Clinic stated in 1930 that "a clinical diagnosis or even surmise of diaphragmatic hernia is scarcely to be expected." It is, however, only by a knowledge of the clinical history of the type of case in which such a hernia is likely to be present that a correct diagnosis can be attained. Intermittent hiatus hernias are never recognized in ordinary routine radiologic examinations, as they are not present when an opaque meal is taken in the erect position. Friedenwald and Feldman showed that they can be most successfully demonstrated when the patient drinks the barium suspension while lying flat on his back; this is also the technic employed by Berg.[25] The hernia, which is never larger than a walnut, at once disappears when the patient stands. Knothe [26] increases the intra-abdominal pressure by heavy compression and Schatzki [27] distends the colon with air, but both maneuvers are likely to produce hernias, which would never develop under natural conditions. The irregular, comparatively thick folds of the fundus mucous membrane can be recognized in the hernia; these are quite distinct from the two or three thin, fine, parallel longitudinal folds in the cardiac sphincter.

24. Moore, A. B., and Kirklin, B. R.: Progress in the Roentgenologic Diagnosis of Diaphragmatic Hernia, J. A. M. A. **95**: 1966 (Dec. 27) 1930.
25. Berg, H. H.: Verhandl. d. Gesellsch. f. Verdauungs. u. Stoffwechselkr. **10**: 67, 1930.
26. Knothe, W.: Deutsche med. Wchnschr. **58**: 609 (April 15) 1932.
27. Schatzki, R.: Deutsches Arch. f. klin. Med. **173**: 85, 1932.

TYPICAL CASE OF RECURRENT HIATUS HERNIA

CASE 4.—M., a man, aged 65, admitted to New Lodge Clinic in January 1933, complained of attacks of severe abdominal pain, which he has had since 1890. At first there were often intervals of a year or more between attacks, but recently they have become increasingly frequent. The attacks recur daily for periods, which at first rarely lasted for more than a fortnight, but on the present occasion there has been no interval of freedom for several months. Day attacks are brought on by stooping, especially about two hours after a meal. The patient, who has a great deal of writing to do in the course of his profession, has had a very low seat made, so that he is compelled to sit upright at his writing table, and he also frequently writes standing very erect at a high desk. Formerly he found it difficult to carry on with his work, owing to the frequent occurrence of attacks when he leaned over a table to write. He has also found that the attacks, which he formerly had after breakfast, can be prevented by raising his feet to the level of his seat when he puts on his boots.

The nocturnal attacks wake him up regularly about two hours after lying down. They are less likely to occur if he has a pillow under his back than if he lies flat. He can get no relief until he sits up and takes some sodium bicarbonate; as soon as he belches the carbon dioxide set free, he is completely relieved and at once lies down and falls asleep again. Alkalis that do not produce gas and food give no relief.

The attacks are more frequent and more severe when the patient is fatigued or worried.

The pain, which is of a dull boring character and rapidly increases in intensity, is situated high in the center of the epigastrium. It never radiates to the back, upward or downward, or to either side.

Roentgen studies had been made a year before the patient came to the clinic, but nothing abnormal was found. Various diagnoses had been made, but no relief had followed any treatment except that already described, which he had discovered for himself.

Dr. T. W. Turner recognized the history as typical of recurrent hiatus hernia, as described by von Bergmann. A roentgen examination carried out in the ordinary way revealed nothing abnormal, but when the patient was examined lying down after swallowing some opaque food without rising, a small hernia was revealed (fig. 7). No pressure was applied to the abdomen. It was no longer visible when the erect position was assumed, all the barium having then passed into the part of the stomach below the diaphragm.

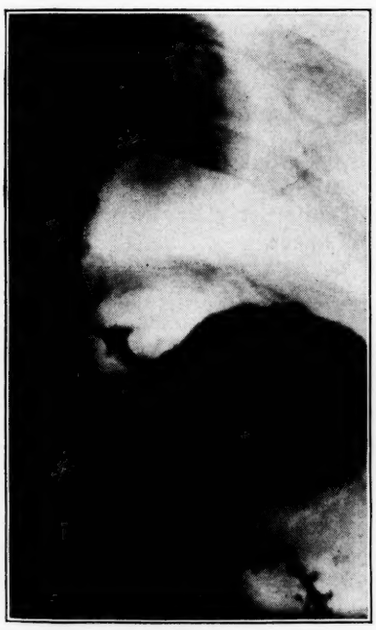

Fig. 6.—Crater of large esophageal ulcer.

CASE 5.—A man, aged 68, obtained relief from the frequent nocturnal attacks that he had had for many years by getting up, stretching himself and pressing the sides of his thorax till he could bring up wind, when the symptoms disappeared and he would quickly fall asleep again. In some of his attacks he felt a suffocating sensation as if his heart was pushed out of place.

PROPHYLAXIS AND TREATMENT

Diurnal attacks can be prevented by avoidance of anything that is likely to increase the intra-abdominal pressure. The patient should avoid bending and should wear nothing that constricts the abdomen. The presence of carbohydrate intestinal dyspepsia with the resulting intestinal flatulence calls for restriction of potatoes, root vegetables and rice and the administration of diastatic ferment and charcoal. Postprandial attacks of the pain can be prevented by drinking effervescing beverages with the meals.

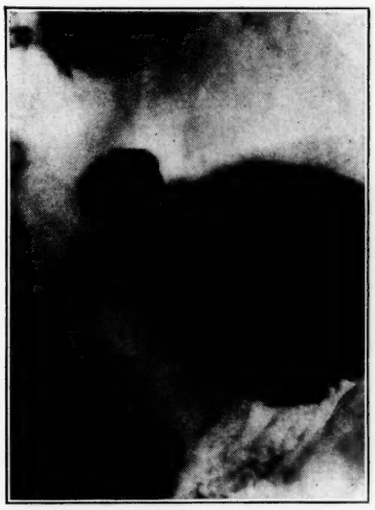

Fig. 7.—Hiatus hernia after patient has taken opaque meal while lying down.

Nocturnal attacks of the pain can be prevented by reducing the increase in the posterior subdiaphragmatic pressure by raising the head of the patient's bed as far as possible.

The attacks themselves can generally be stopped by increasing the intragastric pressure or by drinking soda water or a solution of sodium bicarbonate. If the patient is lying down, he should sit up. If there is reason to believe that the hernial sac is inflamed, the patient should be given an ulcer diet and should avoid lying flat.

New Lodge Clinic.

SEMEN APPRAISAL

A DIFFERENTIAL STAIN THAT ADVANCES THE STUDY OF CELL MORPHOLOGY

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This paper is presented in an effort to simplify and clarify the essential features of semen examination with special regard to defective spermatogenesis in otherwise healthy men. A new method of fixing and staining a microscopic specimen is detailed, which differentiates component parts of the cell without distorting the protoplasm and enables any physician familiar with the use of the oil immersion lens to recognize and classify abnormal sperm cells, and, in specimens of doubtful character, to count the percentage of these cells as an added index of deficiency or improvement.

Such a contribution seems indicated, for, while the profession and also the public now recognize the potential responsibility assumed by the husband in an involuntarily childless marriage, there is convincing evidence that the more thorough study necessary for properly appraising male reproductive vigor is still unappreciated or not believed and thus incorrect diagnoses are very frequent and much useless gynecologic surgery continues. Not only are urologic and endocrinologic reviews relative to male fertility commonly neglected.

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but the examination of the semen, the chief clinical evidence of fecundity, receives but the most elemental consideration. Since 1916, when the senior author first called attention to the importance of lesser semen defects, other investigators have reemphasized this factor and presented improved indexes of evaluation, but many practitioners and microscopists in well equipped laboratories continue content with the simple demonstration of viable sperm cells—often a useless if not a misleading gesture. Some well qualified urologists lack the time or the inclination to interest themselves in this special field. Because of certain social and personal aspects of this problem there is danger that progress in knowledge of this subject and application in general practice may be retarded by a cynical reaction to overemphasis of technical details, many of which still belong to the realm of experimental medicine.

Before proceeding, let us emphasize that we are not aiming to define an illusory point at which a male

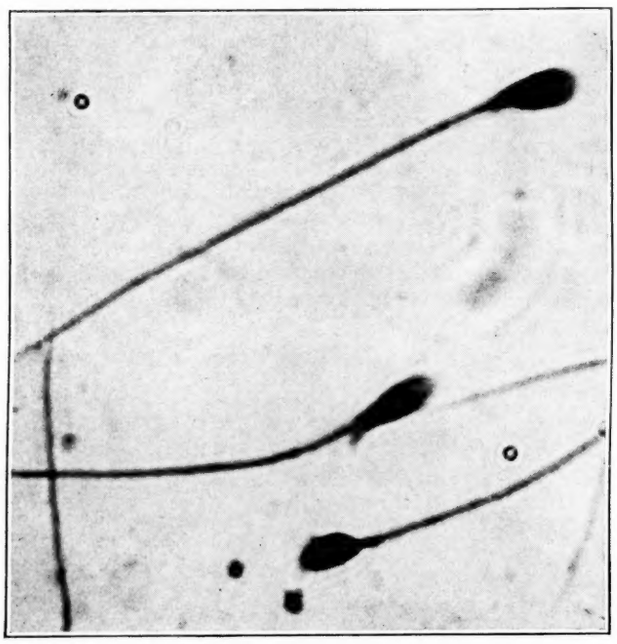

Fig. 1.—Normal spermatozoa, × 1,600: The darker area at the cephalic base takes the blue nuclear stain, the cytoplasm red.

specimen may be said to be fertilizing or nonfertilizing, but we are striving to give the practical evidence by which semen deficiency may be estimated, errors in diagnosis reduced, and the necessity for improving the husband [1] as an important factor in the treatment of involuntary sterility recognized. The importance of semen subnormality as an element in the sterile union may not be determined by this evidence alone but by the facts elicited in a complementary study of all factors affecting fertility in the husband and wife.

The examination of the semen is best described in three steps: (1) collection of the specimen; (2) the gross or macroscopic investigation; (3) the microscopic study.

COLLECTING THE SPECIMEN

Because inquiry is so often made as to the best manner of obtaining the specimen and because its proper collection and delivery are the very foundation of efficient evaluation, this subject deserves careful consideration. With due regard for the attitude of the patient, we choose one of the following methods, with preference in the order named.

(*a*) A self-produced specimen at the office of the examiner. If accuracy is stressed and a quiet, suitable room is provided, many men are not averse to this method and the physician is in constant control of the ejaculate.

(*b*) Collection outside the office by external emission. For this purpose we lend the patient a glass graduate and a small (1 ounce) wide-mouthed bottle. After collection in the former the specimen is allowed to liquefy so that it will not adhere to the glass surface and is then transferred to the bottle. This is corked, placed under the clothing about the torso, and brought to the office.

(*c*) Condom technic. Patients are advised to prepare the condom in advance by washing the preservative powder from the surface that is to receive the specimen, after which it is carefully dried. This precaution is taken because not only do foreign bodies hinder the microscopic examination but there is a chance of harm to the specimen by the various ingredients in these powders. After coitus the condom is tied, gently wrapped in a handkerchief (not clinging, absorbent cotton) and is then concealed under the garment next to the skin, and thus delivered.

Patients are warned not to attempt artificial warming of the specimen, but on general principles we urge gentleness in handling and the maintenance, as far as possible, of even body temperature. The collection should be made when the husband is in usual good health and at a time of sexual rest in accord with his ordinary habits. Examination of the specimen should be made by appointment, preferably not later than an hour after production. The office should be ready for prompt examination when the patient arrives and notation made as to the time of emission, any loss in collection, or deviation from previous instructions. The necessary implements, cleansed in plain hot water and thoroughly dried, should be kept ready for the examination. At the appointed hour we plan to have all apparatus, including the microscope, in a heating box not above hot summer temperature, to avoid thermal shock to the semen and the annoyance of misty lenses. Office-procured specimens are put aside in this box for a half hour to allow the temporary thickening of the semen to liquefy. Otherwise a mucoid substance which suspends activity dominates the microscopic field. Condom specimens should be immediately drained in a small glass graduate by an incision in the most dependent part of the sack.

GROSS EXAMINATION

The gross examination includes a notation of the amount, which, when complete, and from men under forty years of age, should exceed 3.5 cm. Lesser amounts should arouse suspicion of deficiency and premature weakening by vaginal acidity, otherwise negligible. Extended periods of sexual abstinence may impart a slightly yellow tinge to the normal grayish opaqueness. Normal specimens commonly show a slight degree of viscosity, which is easily demonstrated by slowly expelling a drop of semen from a pipet. Absence of viscosity with a lessening of opaqueness points to reduced cell content, although the reverse deduction does not hold.

An alkalinity giving a p_H of 8.1 to 8.4 has been so constant in our experience that it seems an unnecessary refinement except in research study and we do not yet know the significance of wider variations in reaction.

1. Mason, L. W.: Sterility with Reference to the Spermatozoa, Am. J. Obst. & Gynec. **17**: 376 (March) 1929.

It has been pointed out to us also that the loss of carbon dioxide alters the body chemistry of the specimen.

MICROSCOPIC EXAMINATION

Two specimens, one thick and one thin, are promptly prepared for microscopic examination. This is done by gently protecting a full drop and a fractional drop with cover glasses, the former permitting a gross impression of the density and motility of the cellular content, the latter allowing a preliminary study of individual cell morphology. In the thicker preparation, semen of relatively high fertility presents a field teeming with spermatozoa, many of which are rapidly propelled by fast-whipping tails. While universal cell activity would constitute the ideal, one usually notes in comparatively vigorous specimens that these fast travelers are colliding with a certain number of inactive (average 25 per cent) and a variable number of sluggish and impotent cells, which gradually sink toward the lower strata of the field. Familiarity with this picture under standard, dry, high-power magnification constitutes the measure by which motility is judged. It is a practical observation that a motile field though definitely subnormal is apt to convey a favorable impression on the inexperienced or occasional examiner, but reverse errors in interpretation are rarely made. In our experience the practical aspects of

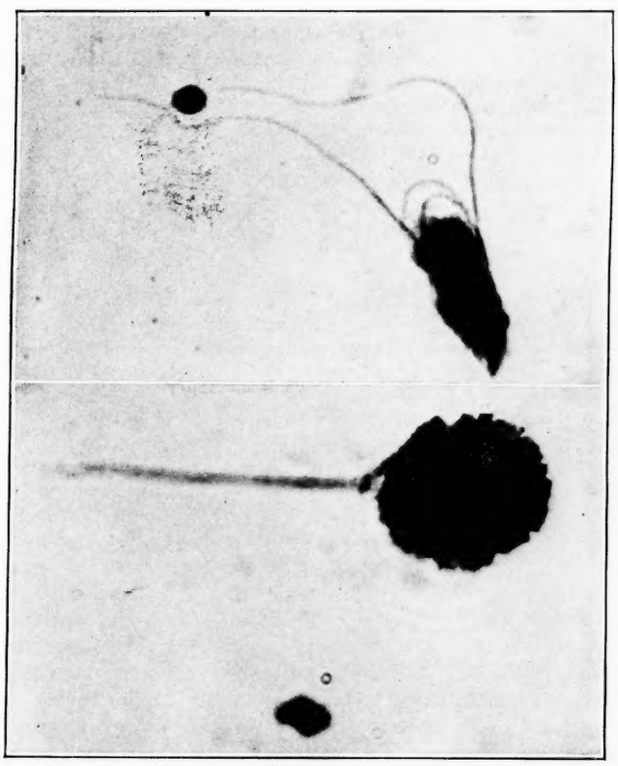

Fig. 2.—Spermatocytes with multiple nuclei and with caudal extremities in process of development: These cells, each of which should produce four spermatozoa, were liberated before division. Slightly reduced from a photomicrograph with a magnification of 1,200 diameters.

motility are that a large number of highly motile cells are essential to fertility, and when a specimen of normal quantity and rich cellular content shows 25 per cent or more of these dynamic cells a rating of relative fertility must be assumed unless strongly disproved by other indexes to be described. Such specimens usually meet other major requirements of fecundity.

Richness of cellular content, in terms of millions per cubic centimeter,[2] has been given emphasis by Macomber,[3] Meeker and other workers as a further index of appraisal. While significant degrees of oligospermia are usually apparent to the experienced examiner on microscopic examination, there is no verbal picture that will adequately provide such an index. It may

Fig. 3.—Transitional cells, divided but without complete evolution of component parts. Increased numbers of immature cells, from the spermatocyte to the spermatozoon with protoplasmic deformity, characterize one type of defective semen.

be said, however, that such specimens usually present other evidences of subnormality, such as lowered motility, increased number of abnormal cells, early crystal formation, and sometimes considerable indescribable débris. Such specimens may contain several round granular cells in each field. These may be leukocytes or cells from the seminiferous tubules. The larger granular cells are spermatocytes; there are usually four nuclei, which may be demonstrated by the staining process later described. Cell counts are probably modified by the amount of the seminal fluid and, while we agree with other observers that counts above 70,000,000 per cubic centimeter are found in fertile specimens, our experience would make us hesitate in setting a medium arbitrary count below which fertility is impossible. On the other hand, we have encountered a count as high as 112,000,000 in a highly defective specimen which was twice of less than 20 minims total quantity. This specimen promptly improved after treatment, and pregnancy followed.

Duration of motility is one essential to fecundation that can be easily determined. For this purpose the edge of the cover glass on the thicker smear should be protected by a layer of petrolatum or new smears made from hour to hour from the total specimen. A

2. Thoroughly stirred semen diluted 1: 20 with a solution of 4 parts of sodium bicarbonate and 1 part of phenol in distilled water (Vose, S. N.: Critical Examination of the Semen in Relation to Sterility, Urol. & Cutan. Rev. **34:** 826 [Dec.] 1930) in a white cell pipet should normally show from 14 to 25 spermatozoa to one great square; that is, sixteen small squares of the counting chamber.

3. Macomber, Donald, and Saunders, M. B.: The Spermatozoa Count: Its Value, Diagnosis, Prognosis and Treatment of Sterility, New England J. Med. **200:** 981 (May 9) 1929.

normal specimen exhibits little cessation at the third hour after emission, and considerable cellular activity should be found at the fifth or sixth hour. Complete or considerable subsidence of motility within this limitation should be regarded as a further index of deficiency, but it should be noted that the few motile cells that were originally active in a highly defective specimen occasionally survive for many hours. Reciprocal studies [4] between the direct male specimen and its behavior in the female secretions tend to indicate that duration is practically synonymous with early vigor of motility; but there may be exceptions to this rule.

ABNORMAL MORPHOLOGY

Defective semen may be caused by abnormalities in the seminal tract through which or in which the spermatozoa are conducted or retained, or by disturbance of the spermatogenic function. The former condition, due to chronic infection, sex exhaustion, or congestion with possible blockade, is characterized by reduction of sperm cell vitality or by lessening of the cellular or fluid constituents of the semen. These cases, we believe, constitute the group that respond to prostatic massage, heat and rest.

The latter condition, defective spermatogenesis, frequently occurs in men who give no evidence of local pathologic changes and who are classed as passable subjects by unbiased endocrinologic and medical consultants. The semen is occasionally characterized by complete lack of sperm cell production, but more frequently we encounter lesser degrees of sperm reduction with high percentages of abnormal cells (from 30 to 70 per cent), the product of incomplete evolution (fig. 2). We believe that these cases, for which further remedies are so sorely needed, frequently arise from deficient gonad activation similar to that encountered in otherwise healthy women. The latter group of cases has been made the subject of special study by the junior author assisted by the hematology laboratories of the medical department of the New York Hospital All maldevelopments of the spermatozoa with special regard to immaturity (figs. 2-4) have been the chief topic of

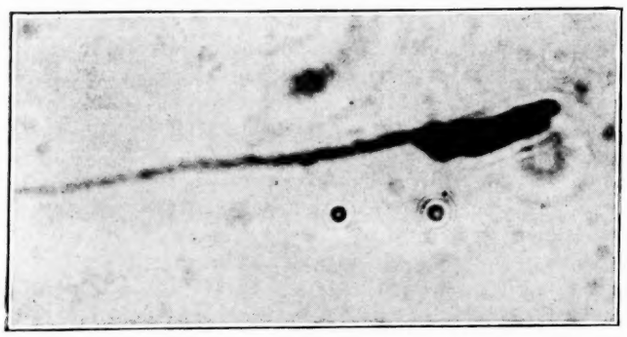

Fig. 4.—Comma cell: distorted nucleus and deficient cytoplasm. Numerous in some highly defective semens. Less easily recognized in the wet specimen than the commoner known abnormalities.

this study rather than variation in the length of the sperm head, an index described by Moench [5] which we have found difficult to adapt clinically to the human product.

In the course of our examination of seminal specimens, it was felt that there was an urgent need for an improved staining process to define more clearly the exact morphology of the spermatozoon. Heretofore it was directed that the specimen was to be smeared on a slide and treated with heat, air or alcohol for fixation. The delicate cells were consequently distorted by dehydration and their contour materially falsified by shrinkage. Likewise the extracellular débris, purported to be partly removed by a chlorazene wash, still remained in sufficient quantity to obscure further the character of the spermatozoa.

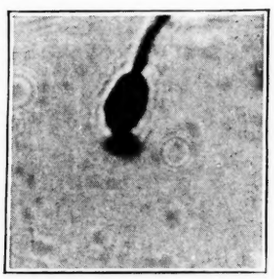

Fig. 5.—Differential stain, disclosing a vacuole in a normally shaped head.

After many trials with various agents it was found that Schaudinn's solution was ideal for the fixation process, for it not only preserved the normal morphology of the cells but also removed the objectionable débris. The next problem was to devise a balanced stain that would demonstrate all portions of the spermatozoon yet spare the chromophilic substance from overstain.

The following technic permits illustration of the head, midsection and tail of the sperm (fig. 1).

A. Prepare thin cover slip smears as used in the preparation of blood for staining.

B. Fixation in Schaudinn's solution: 1. Immerse for one minute in 7 per cent solution of corrosive mercuric chloride, 2 parts, and absolute alcohol, 1 part.

2. Immerse for half a minute in 50 per cent alcohol.

3. Immerse for half a minute in distilled water, 3 ounces, and tincture of iodine, 2 drops.

4. Wash in tap water.

C. Staining process: 1. Immerse for half a minute in aqueous solution of eosin, 5 per cent.

2. Immerse for one minute in 50 per cent alcohol, 3 ounces, and concentrated hydrochloric acid, 2 drops.

3. Wash in distilled water.

4. Immerse for two and one-half minutes in hematoxylin.

5. Immerse for one minute in distilled water, 3 ounces, and glacial acetic acid, 2 drops.

6. Wash in distilled water.

Dry and mount.

The importance of the stained specimens may be realized by the accompanying photomicrographs, taken with the aid of an oil immersion objective. The striking contrasts in size, shape and nuclear arrangement may be especially appreciated by the fact that all exposures are taken at the same magnification (1,600 diameters). The nuclei stain blue and the cytoplasm red, a feature unfortunately lost by black and white photography. These abnormal forms may possess motile facilities when they are observed in the wet specimen. On postcoital examination, however, they are rarely if ever found in the upper levels of cervical mucus and we consider them ineffectual for fertilization.

In appraising seminal specimens, we deduct the percentage of abnormal forms found from the total cell count. The resultant figure, when correlated with other data, is of great importance in the more accurate evaluation of the semen. For instance, 40 per cent of inactive cells with 25 per cent abnormal forms would indicate more serious impairment and need for greater improvement in a specimen with a count of 60,000,000 or less than would obtain with a cell count of 100,000,000.

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4. Cary, W. H.: Sterility Diagnosis: The Study of Sperm Cell Migration in the Female Secretions and Interpretation of Findings, New York State J. Med. **30**: 131 (Feb. 1) 1930.

5. Moench, G. L.: Biometrical Studies of Head Lengths of Human Spermatozoa, J. Lab. & Clin. Med. **17**: 297 (Jan.) 1932.

THE ROENTGEN DEMONSTRATION OF CALCIFIED CORONARY ARTERIES IN LIVING SUBJECTS

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Pericardial calcification has been demonstrated roentgenographically in living patients by many authors. Calcification in the myocardium, in cardiac aneurysms, in cardiac thromboses and in tumors has been shown in postmortem specimens. In a previous communication we [1] summed up all the previously reported cases of endocardial calcification together with those in the annulus fibrosus and added twenty-three cases, all demonstrated in living patients. The total number of these in our files is now forty-five, several of which have been confirmed by the pathologist.

It has been said by many roentgenologists writing on the subject of calcification in the heart that calcified coronary arteries should be demonstrable in the living patient but that this discovery must wait for refinements in technic and improvements in x-ray equipment. Recently Roesler,[2] in a review of the roentgen interpretation of cardiovascular disease, said: "Calcification of the coronary arteries will undoubtedly be shown in the future with further progress in technic." When large amounts of calcium are present in the coronary arteries there is no need to wait for "further progress in technic." In reviewing the various types of cardiac

Fig. 1 (case 1).—A fast film (exposure, one-thirtieth second) showing: 1, descending branch of right coronary artery; 3, left coronary artery with typical parallel and segmental shadows.

calcifications that have been shown roentgenographically, there is no record to our knowledge of calcified coronary arteries having been demonstrated in the living subject. For this reason we are presenting three cases in which calcified coronary arteries have been shown during life. One of these cases came to autopsy and the pathologic examination confirmed the interpretations applied to these shadows seen roentgenoscopically and roentgenographically.

CASE 1.—E. L., a housewife, aged 67, entered the Peter Bent Brigham Hospital, Dec. 2, 1933, complaining of precordial pain

Fig. 2 (case 1).—Roentgenographic appearance of the heart after autopsy, showing amount and distribution of calcification in the coronary arteries, with arrows pointing to the same shadows shown in figure 1. The wire ring is around the aortic valve, in which there is a single nodule of calcification.

of about twelve years' duration. The pain had become so severe that very slight exertion would precipitate an attack. The distress was described as a sensation of "the chest being drawn together," and the pain radiated into the left side of the neck and down the left arm. It was always relieved by glyceryl trinitrate. The important physical changes were limited to the heart, which was slightly enlarged and over which an aortic systolic murmur could be heard. On one occasion an aortic systolic thrill was palpable. A diagnosis of angina pectoris and aortic stenosis was made by her physician, Dr. S. A. Levine, and because of the incapacitating nature of her illness she was referred into the hospital for the relief of these symptoms by total thyroidectomy.[3]

At fluoroscopy, December 5, the heart was noted to have a rapid, regular beat of fair amplitude. There were visible small areas of calcification in the region of the coronary sulcus thought to be in the coronary arteries. The slight cardiac enlargement was verified by a seven foot heart film. There was no abnormality in the contour of the heart except for a tortuous aorta. Speed films (fig. 1) taken accurately through the area of calcification confirmed the fluoroscopic observation.

Following thyroidectomy a typical attack of acute coronary thrombosis developed and the patient died. At autopsy the mediastinal tissues together with the heart and lungs were removed in order to preserve, as far as possible, the antemortem relationships. Stereoscopic films of the preparation showed marked calcification in the coronary arteries (fig. 2). The left coronary artery had three main branches, all of which showed calcification extending almost to the apex of the heart. The right coronary artery had a single branch, which was calcified. The maximum calcification was at the point where the left coronary artery divided into the interventricular and left marginal branches. There was also marked calcification

Read before the New England Roentgen Ray Society, Dec. 15, 1933.
From the Medical Clinic and the Department of Roentgenology of the Peter Bent Brigham Hospital.

1. Sosman, M. C., and Wosika, P. H.: Calcification in Aortic and Mitral Valves, with a Report of Twenty-Three Cases, Am. J. Roentgenol. **30**: 328, 1933.

2. Roesler, H.: Roentgen-Ray Interpretation of Cardiovascular Disease, part III, Modern Concepts of Cardiovascular Disease, vol. II, November, 1933.

3. Total thyroidectomy was performed in cases 1 and 3 by Dr. E. C. Cutler.

in the wall of the aorta, and a few irregular calcified nodules were present in the aortic valve. The latter was so slight that it was impossible to see radiographically despite the fact that its presence was suspected clinically.

The pathologic examination confirmed the fluoroscopic impression and roentgenograms.

CASE 2.—P. B., a chauffeur, aged 67, entered the hospital, Jan. 30, 1933, complaining of jaundice of one week's duration. He had been well most of his life until eight years before admission, when he first noted substernal pain. The pain was gripping in character, was moderately severe, and radiated into the left shoulder and down the left arm. The number of attacks increased in severity through the succeeding years but these were always controlled by rest or glyceryl trinitrate. Physical examination showed that the area of cardiac dulness was increased, but nothing else abnormal was noted except moderate peripheral arteriosclerosis.

A gastro-intestinal series, February 3, was negative, but during the fluoroscopic examination a linear area of calcification was discovered within the heart shadow. The calcified area was semilunar in shape, with the convexity directed upward, and was from 6 to 7 cm. in length. This shadow was in the region of the left coronary sulcus, quite close to the heart surface. There was only slight movement of this shadow toward the apex with systole, in contradistinction to the dancing movement previously described for the shadows cast by calcified valves. The shadow was diagnosed as a calcified coronary artery because of its position in the coronary sulcus, near the heart surface, its linear convex shape and its limited motion during systole. It was further demonstrated on speed films (fig. 3).

The jaundice cleared and the patient was discharged, February 16. He continues in his limited activities and controls the angina pectoris with glyceryl trinitrate.

CASE 3.—A. P., a truck driver, aged 60, who reentered the hospital, Nov. 7, 1933, had been a patient in several departments

Fig. 3 (case 2).—A fast film (exposure, one-twentieth second), showing the arched semilunar shadow of the calcified left coronary artery at 3 and a calcified costal cartilage at 2.

for more than two years, during which time his major complaint had been substernal pain. The pain occurred in attacks as a result of mild exercise and radiated into the left shoulder and left arm. It was usually relieved by glyceryl trinitrate, but on several occasions it was persistent and occlusion of the coronary artery was suspected. This diagnosis could not be substantiated. Physical examination of the heart was negative. There were no thrills, murmurs or irregularities of rhythm. There was moderate peripheral arteriosclerosis. The patient was examined roentgenographically, Feb. 17, 1931, Sept. 10, 1931, and Sept. 19, 1933. On each of these occasions the heart was found to be well within normal limits and normal in contour. Fluoroscopic examinations were reported to give negative results. The heart was seen to beat regularly and with good amplitude. Although there was a large functional element in the patient's condition, the incapacitating angina pectoris continued and on Sept. 21, 1933, a total thyroidectomy was performed successfully, completely relieving the substernal pain.

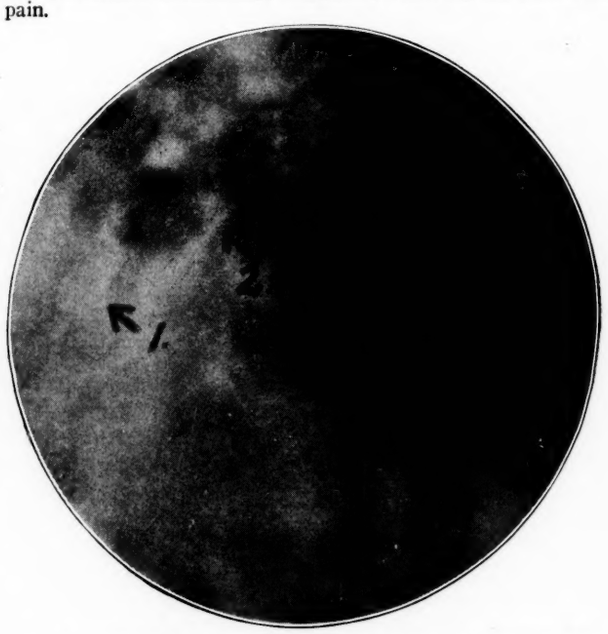

Fig. 4 (case 3).—A fast film (exposure, one-twentieth second) showing calcified right coronary artery at 1, costal cartilages at 2 and left coronary artery at 3.

Two months after thyroidectomy the roentgenoscopic appearance changed. November 16 the heart was found to be enlarged. The total width was 2 cm. greater than on previous examinations. Fluoroscopy showed a regular beat of fair amplitude. There was a linear segmental shadow apparently cast by calcium deposited just under the pericardium on the left border. This was seen best in the right anterior oblique position. Another shadow with the same linear segmental appearance was seen to curve downward and to the right. These shadows in all probability represented calcified right and left coronary arteries and were clearly shown on films taken through those areas (fig. 4).

COMMENT

It should be remembered that not every small fleck of calcium in the coronary arteries can be visualized roentgenographically. A fairly large amount of calcium is required to interrupt enough rays to cast a shadow that can be recognized. Judging, however, from the numerous instances of massive calcification of the coronary arteries noted at the autopsy table, the roentgen diagnosis during life should be a common one.

It is well to emphasize again that these small calcifications in the heart shadow are seen only when they are searched for. The observer, when his eyes are properly accommodated, should look through the cardiac shadow on fluoroscopic examination rather than simply at the movements of the heart borders. The patient should be rotated in all directions. Closing one's eyes for a few moments often rests them and brings out the dark shadows more clearly. That this intracardiac calcification is seen only when looked for is well exemplified by case 3. This patient had been examined fluoroscopically on three occasions and only two months had elapsed between the discovery of the calcified vessels and the

previous examination. The amount of calcium present could not possibly have developed in those two months, regardless of the increased heart size.

Fluoroscopically, as one would expect, the calcium deposit is seen in the coronary sulcus. This is high on the left border of the heart and is seen best in the right anterior oblique position. The shadow cast is quite close to the heart border, apparently just under the pericardium. There is a slight movement during systole which is similar to that of the heart edge directly over the deposit. The shadows are to be differentiated from calcification in the valves by their location. Valvular calcifications are usually found by locating the auriculoventricular groove on the left border and searching through the heart shadow downward, inward and medially at an angle of 45 degrees. The movement of the valvular calcifications is also characteristic in that they move toward the apex with systole and occasionally intrinsic movements of the valves may be seen as well. This imparts the dancing motion that has been described previously.[4]

The appearance of the calcified arteries on films also is characteristic. The shadows appear linear and segmental and are curved corresponding to the course of the artery. The linear shadows also appear double on the speed films and parallel in places as if one were seeing the walls of the artery. In our three cases the arrangement of calcium in no way resembles the structureless mass of calcium seen in the valves.

Other areas to be differentiated from the calcified coronary arteries are (1) pericardial calcification, (2) calcified costal cartilages, (3) bronchi behind the heart and (4) calcified lymph nodes or nodules.

1. Calcified areas in the pericardium are parallel to the heart surface in at least one view. They move with the heart surface but slightly, as a rule, as visible pulsations are considerably diminished by the thickened and adherent pericardium. They are most commonly found where the heart is in contact with the diaphragm, more on the right side, but may frequently be found in the coronary sulcus. Here the fast films are of value, as this calcification is more solid, often branching and sometimes intercommunicating, forming a network. One does not see the interrupted segments parallel to each other so characteristic of the calcified arteries.

2. The calcified costal cartilages run in an entirely different direction from the calcified arteries and are usually smoother, sharper and denser. They are not confusing at fluoroscopy but may be so on the films. The typical appearance of such a calcified cartilage is shown at 2 in figure 3 and 2 in figure 4.

3. The bronchi behind the heart are not as dense or as opaque as the calcified arteries and they, too, run in a different direction. They may, however, parallel the descending branch of the right coronary artery but they are easily recognizable and should not cause much, if any, confusion. They do not complicate the fluoroscopic picture.

4. Calcified glands and nodules in the lungs or mediastinum are readily differentiated both fluoroscopically and radiographically by their more dense, solid and rounded appearance and should not cause any difficulty in interpretation.

It is interesting that the three patients suffered from angina pectoris. We feel that the severe grade of coronary sclerosis demonstrated is of interest in relation to this condition, and it is possible that the demonstration of such calcification may be of aid in the determination of the etiology of angina pectoris in certain cases.

721 Huntington Avenue.

4. The technic and the literature on this subject may be found in the previous report.[1]

FAMILIAL NEUROTROPHIC OSSEOUS ATROPHY

A FAMILIAL NEUROTROPHIC CONDITION OF THE FEET WITH ANESTHESIA AND LOSS OF BONE

E. MAURICE SMITH, M.D.
MOUNT VERNON, ILL.

An unusual clinical condition, which has not permitted definite classification, has been observed in two generations of a family, and there is definite history of the same disease in an earlier generation, making three generations in which the condition has appeared.

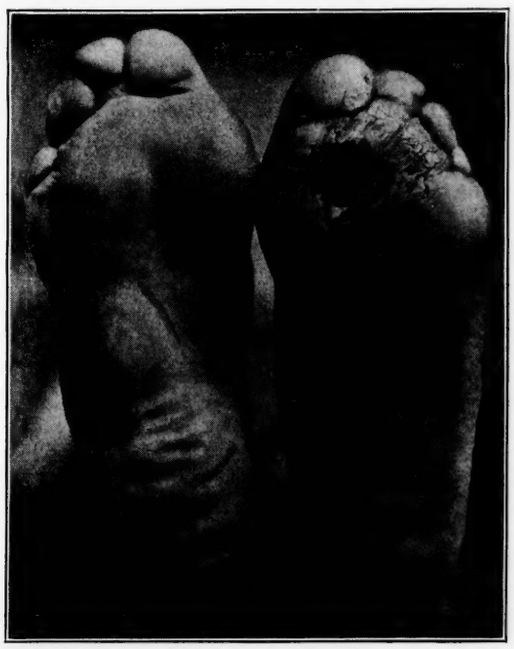

Fig. 1.—Lesions in case 1.

FAMILY HISTORY

The father (first generation) of the three men (second generation) who now have the condition described died many years ago but is said by the sons to have had ulceration of the feet with anesthesia and with loss of bone similar to that which afflicts the three sons. This man is reported to have had a brother who was afflicted in the same manner. None of the five daughters of the man first mentioned gave a history of a similar condition. The father was married twice. One of the patients in the series to be described in the second generation was born of the first union, and two of the second union. Otherwise the family history is not important save that all members of the family group considered have been born and raised in southern Illinois and have always lived there or elsewhere in the northern part of the United States. The condition to be described is essentially an ulceration of the soles of the feet associated with anesthesia and destruction of bone. It is familial in occurrence and so far as can be ascertained appears to have been confined to males.

CASES IN SECOND GENERATION

CASE 1.—C. F., Sr., aged 53, a farmer, worked at times in industrial establishments. There is at present a crater shaped ulcer about 3 by 5 cm. in diameter on the under surface of the left foot just behind the first and second toes. To the right and left and slightly behind this large ulcer are two much smaller ulcers, as will be noted in figure 1. The ulcers are

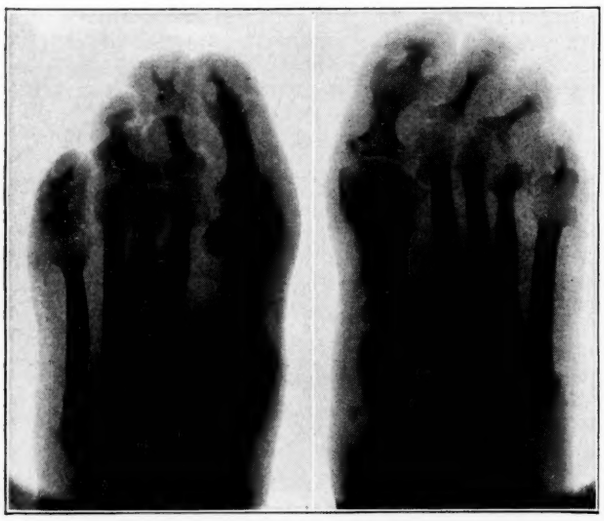

Fig. 2.—Anterior-posterior view of right and left feet in case 1, showing a loss of several phalanges, marked hypertrophic changes, spurs, absorption of small toes of both feet, fusion of metatarsals of the left foot, no calcification and apparently no osteoporosis.

red, granulating, and surrounded by a heavy callus. There is a profuse discharge with a slight odor. The patient states that the large ulcer developed after a burn of the sole, which occurred ten or twelve years ago while he was working in a foundry. He states that pieces of bone are discharged from this ulcerating area. For the past twenty years, at intervals,

Fig. 3.—Anterior-posterior view of feet in case 4, revealing a loss of the phalanges and a part of the metatarsal of the left foot, neurotrophic destruction of the joint of the left fifth toe, entire loss of the fifth toe and a part of the metatarsal, with apparently no atrophy, decalcification or osteoporosis.

there has been ulceration of the toes of both feet with destruction of bone, which can be observed in roentgenograms. Complete healing of the toes occurs after ulceration, but anesthesia remains. The ulceration on the plantar surface of the foot never has completely healed. There is an absence of the sense of touch and pain throughout the sole and the inner aspect of the dorsum of the left foot. There is a similar area of loss of sensation on the right foot. These ulcers are indurated, and destruction of tissue is much greater than appears on the surface. The ulcers are quite painless, the patient walking about without discomfort. Recently the patient, while working in the timber, cut through the left shoe, inflicting a wound of the foot, but was unaware of having injured the foot until he returned home, removed his shoe and found it filled with blood. At intervals of about three months the patient has a high fever, which lasts from twenty-four to forty-eight hours, with mild delirium, swelling of the feet, and glandular enlargements.

CASE 2.—A. F., aged 32, a half brother of patient 1, is said to have had the condition since the age of 19 years, at which time blisters developed on the toes and soles of both feet. These blisters healed after discharge of bone, excepting one ulcer on one foot. There was at the time of ulceration pronounced loss of sensation on the dorsum of the right foot and slight loss of sensation on the left foot.

CASE 3.—E. F., aged 34, a brother of patient 2 and a half brother of patient 1, had blisters on the toes of both feet at approximately the age of 14, with discharge of pus and pieces of bone. At one time he had a positive Wassermann reaction and was placed on antisyphilitic treatment, without material change in his condition. At present there is ulceration and anesthesia of both feet.

Fig. 4.—Posterior-anterior view of feet in case 5, showing neurotrophic destruction of the tarsometatarsal joint of the left great toe, complete absorption of the terminal and middle phalanges of the fourth toe, loss of terminal phalanges of the fifth toe, with apparently no rarification or atrophy of bone.

The data on cases 2 and 3 were furnished me by a professional colleague who has seen these cases recently in another state and who kindly furnished the information.

CASES IN THE THIRD GENERATION

These patients are sons of patient 1. There are two sons and three daughters in this generation who are free from the disease.

CASE 4.—H. F., aged 23, presented a history covering a period of five or six years. An ulcer developed after a tack had been accidentally run into the foot without causing pain. This small wound developed into an ulcer, which never has completely healed. There is at present an ulcer, perhaps 1 cm. in diameter, on the inner aspect of the sole of the right foot just behind the great toe. There are anesthesia and analgesia over an area about 30 mm. in diameter around a similar ulcer on the left foot, and an area of loss of sensation on the dorsal aspect of the fourth toe of the left foot. There is some loss of sensation noted on the dorsal aspect of all toes of the right foot. There has been an amputation of the fifth toe, this amputation having been performed without an anesthetic.

There has been also an amputation of the fourth toe of the left foot (a small amount of anesthetic was used for this amputation). The patient sheds his toenails every two or three months. There is also ulceration of the toes at intervals.

CASE 5.—C. F., Jr., aged 18, shows destruction of the bone at the tarsometatarsal joint of the left great toe, and an absence

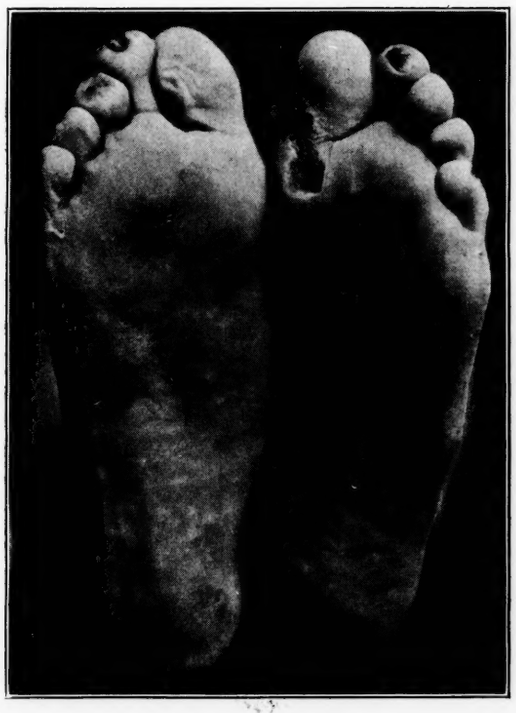

Fig. 5.—Lesions in case 6.

of the distal phalanx of the third toe and the second and third phalanx of the fifth toe. There is also a large ulcer on the dorsal side of the second toe, with destruction of the first phalangeal joint of the third toe. The condition is of eighteen months' standing.

Fig. 6.—Anterior-posterior view in case 6, revealing a neurotrophic destruction of the first joint of the left foot, loss of the distal and middle phalanges of the fourth toe, and no marked atrophy or decalcification.

CASE 6.—S. F., aged 16 years, has had the condition for about three years. The ulcer covers an area of 5 by 2 cm. on the plantar surface of the left great toe, extending downward to the first phalanx of the great toe. On the right foot the first and second toes show superficial ulcers on the plantar surface. Slivers of bone have been discharged from the ulcer on the foot and from several of the toes, always painlessly. The only area of anesthesia is one extending about 4 cm. around and bordering the ulcer on the left foot. The boy is an all-round athlete, playing basketball and football on the high school team without discomfort.

COMMENT

Microscopic examination of nasal smears and biopsy material from the lesions on the feet has been negative for acid-fast bacilli. The Wassermann reaction is negative in all cases excepting case 3, as noted. Many diagnoses have been suggested and considered, none of which seem satisfactory. Syphilis, tuberculosis and syringomyelia are readily eliminated on clinical grounds. Leprosy has been given serious consideration but is to be excluded on account of the absence of manifestations elsewhere than on the feet and the uniformity of the type of manifestations in all members of the group. The patients were seen by a consultant with a large experience in leprosy, who ruled out that condition. However, he stated that any one of the cases considered alone would justify a strong suspicion of leprosy.

1001½ Broadway.

SARCOMA OF CHEEK FOLLOWING TRICHO X-RAY TREATMENT FOR HAIR ON FACE

REPORT OF CASE

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The early enthusiasm that attended the discovery of the x-rays gave rise to their employment by methods that bore no regard to inherent physical and biologic factors associated with this form of energy. This disregard of these biologic factors led to many unfortunate reactions and sequelae both on the person of the x-ray operator himself and on the patient. Marcuse in 1896, according to Ewing,[1] made the first formal report of this condition, and Kienbock, cited by Ewing, in 1900 described in detail this x-ray dermatitis.

Among the biologic reactions early recognized was that the x-rays caused epilation. It was found that this agent, when properly employed and applied only within certain fixed limits established by physical and biologic measurements, produced this epilatory result without destructive effect on the tissues to which x-rays are administered.

The early advocates of x-rays suggested their use as a panacea for many skin conditions, including hirsuties facialis. The obvious simplicity with which epilation was effected by the application of x-rays quickly gave them a place in the armamentarium of the dermatologist. MacKee,[2] however, warned against the careless use of x-rays for this purpose, because careful observers have learned that overexposure or oft repeated exposure of the skin to x-rays produced a thickening of the skin, with telangiectasis, keratosis and at times definite ulceration necrosis. According to Matas[3] these untoward sequelae may appear many

1. Ewing, James: Neoplastic Diseases, Philadelphia, W. B. Saunders Company, 1922.
2. MacKee, G. M.: X-Rays and Radium in the Treatment of the Skin, Philadelphia, Lea & Febiger, 1927.
3. Matas, Rudolph: Am. J. Roentgenol. **13**: 37 (Jan.) 1925.

months and even years after the first application of x-rays has been given.

That malignant changes in the skin and adjacent tissues have followed excessive applications to portions of the body has been definitely demonstrated. Porter [4] in 1909 reported forty-seven cases of skin injury due to x-rays, forty-one of which proved to be malignant. Wolbach [5] states that malignant changes in the skin following irradiation is not a sudden occurrence but is gradually acquired over a period of years. He describes in detail the histologic changes taking place in such lesions. MacKee, Stout [6] and others report such degenerative changes in cases coming under their observations. Pfahler,[7] reporting on the occurrence of keratotic and malignant changes in irradiated skin, believes that most such malignant changes are of the epitheliomatous type, which is in accordance with the observations of other workers in this field. Sarcomas following x-ray injury of the skin are rare.

Fig. 1.—Telangiectasia and scarring of left cheek eight and one-half years following Tricho x-ray treatment for hair on face.

Fig. 2.—Fibrosarcoma on right cheek of the patient.

Stout states that sarcoma followed intensive roentgen therapy of lupus and other skin lesions, and according to Harbitz, quoted by Stout, the x-rays are a definite etiologic factor in the formation of some sarcomas. Two cases of sarcoma of the skin after roentgen irradiation are reported by Bohmer.[8] I have seen many cases of x-ray burn and malignancy of the carcinomatous type at the New York City Cancer Hospital, but the case reported here is the first one of sarcoma seen.

Fig. 3.—Telangiectasia of patient's face.

Until recently, the absence of any governmental restrictions relating to who should be permitted to use x-ray apparatus suggested to many lay persons, with little or no knowledge of the physical and biologic factors of x-rays, the employment of this modality in the treatment of various superficial conditions and these beauty specialists adopted this method for treating hirsuties facialis.

One such notorious group was the Tricho Company, which advertised hair removal by x-rays at moderate fees. Its methods were exposed in THE JOURNAL,[9] and the serious results of such treatment began to be reported in the literature by Lane [10] and others.

4. Porter, C. A.: Am. J. Roentgenol. **13**: 31 (Jan.) 1925.
5. Wolbach, S. B.: Am. J. Roentgenol. **13**: 139 (Feb.) 1925.
6. Stout, A. P.: Human Cancer, Philadelphia, Lea & Febiger, 1932.
7. Pfahler, G. E.: Am. J. Roentgenol. **13**: 41 (Jan.) 1925.
8. Bohmer, L.: Year Book of Radiology, 1933, p. 784.
9. The Tricho System, J. A. M. A. **92**: 252 (Jan. 19) 1929; reprint, prepared and issued by the Bureau of Investigation of the American Medical Association, October 1930.
10. Lane, C. G.: Some More Tricho Cases, J. A. M. A. **95**: 286 (July 26) 1930.

The case here described is one of definite malignant degeneration of the skin and subjacent tissues eight and one-half years after roentgen treatment for hair removal by the Tricho method.

REPORT OF CASE

J. N., a woman, aged 28, single, a milliner, was admitted to the New York City Cancer Institute, Aug. 3, 1933, because of a growth on the right cheek. In 1926, having an excessive quantity of black hair on her face, she sought treatment at the Tricho Institute. There she received two roentgen treatments a week until a total of twenty treatments had been given to each side of the face. Epilation was effected at the end of the treatments. Later she noticed some gradual changes in the skin, such as reddening and whitening, but thought nothing of it. About two years before admission, however, she perceived what she termed a growth developing on the right cheek. In the spring of 1933 she noted, after exposing her face to the sun, that there was a steady increase in the size of the tumor mass and came to the Cancer Institute on the advice of a physician.

Examination on admittance showed marked telangiectasis and scarring of both sides of the face, the upper lip and the chin. On the right cheek there was an irregular, granular, strawberry red tumor mass measuring 1 by 2 inches (2.5 by 5 cm.) and three-eighths inches (1 cm.) high, covered by an apparently infected dirty scab. The mass was firmly adherent to the underlying structures of the cheek.

A diagnosis of epithelioma on the basis of an x-ray burn was made, and because of the infection present the patient was advised to apply wet dressings to the cheek, following which radium therapy was to be employed to control the malignancy.

The patient left the clinic and did not return until one month later, when the lesion appeared to have increased in size. She was admitted to the hospital and a biopsy of the tumor mass was taken and a radium pack applied. A dose of 1,000 millicurie hours was given over a period of several days, and the patient discharged from the hospital.

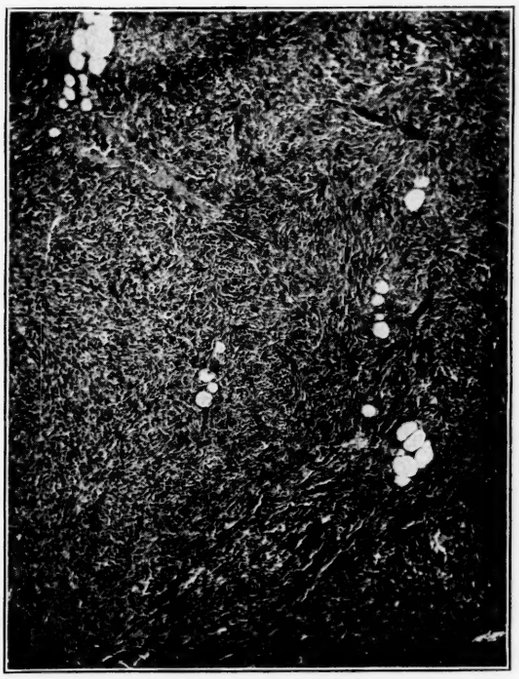

Fig. 4.—Section of spindle cell sarcoma under low power.

The report of the biopsy was "fibroblastic granulation tissue."

The lesion failed to heal, and one month after the radium treatment, October 16, the patient was readmitted to the hospital and the whole lesion removed by operation.

Examination of the tumor mass by Dr. Sala, the pathologist of the institute, proved it to be spindle cell sarcoma.

At the present time the lesion is not completely healed.

CONCLUSIONS

Repeated roentgen treatments may cause destructive lesions of the skin. Because of its potential danger, irradiation should be employed only by those properly qualified by special training and experience.

Fig. 5.—Section of spindle cell sarcoma under high power.

These destructive changes may occur many months or even years after treatment.

Malignant changes may occur following necrosis in an overirradiated skin area.

Removal of hair by x-rays is fraught with danger.

In the case reported, sarcomatous degeneration followed repeated treatments with x-rays for hair on the face, applied by Tricho, a commercial beauty parlor.

55 East Eighty-Sixth Street.

Borborygmi.—There are borborygmi which matter and borborygmi which do not. The commonest are the almost musical borborygmi of the nervous maid waiting at table. There is another curious type of rhythmical bubbling in the stomach, synchronous with the respirations, which occurs in nervous enteroptotic women who have acquired a faulty habit of abdominal breathing. These are gastric in origin. But there are also intestinal borborygmi of grave import in chronic obstruction, which synchronize with peristaltic movements, subterranean in quality and recurring at more or less regular intervals. Without putting the ear to the abdominal wall, they may be readily located in the bowel. Finally, there are sounds which I would characterize as "hollow tinklings," which may be heard in cases of paralytic distention of the gut, or again in chronic intestinal obstruction. The sense of hearing, like the sense of sight, can only be trained and put to better use by paying attention, and by deeming nothing so trivial as to be allowed to escape your notice.—Ryle, J. A.: The Training and Use of the Senses in Clinical Work, *Guy's Hosp. Gaz.* **47**:421 (Oct. 28) 1933.

DELAYED APPEARANCE OF DEFORMITY IN VERTEBRAL BODY FRACTURES

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ST. PETERSBURG, FLA.

Low back pain constitutes a rather important condition in medical practice, and it is one for which the physician has often been able to do very little. Frequently this is because a compression fracture of a vertebral body has been undiagnosed. There may never have been a roentgen study of the case to account for nonrecognition, or roentgenograms may have been made properly and promptly after the injury but no abnormality was discovered.

It is my purpose in this communication to call attention to a class of spinal injuries—compression fractures of the vertebral bodies—which show no evidence of fracture deformity when roentgenograms are made immediately after the injury but on subsequent study ten days or more later do show a recognizable deformity in the lateral silhouette.

Having observed this sequence in three cases, I have made it a routine procedure in reporting a normal spine, following trauma, however slight, to request the referring physician to return the patient in from ten days to three weeks for a recheck should discomfort or disability continue, for there are instances in which compression fractures of the vertebral bodies show after an interval that are not demonstrable immediately after the injury.

The reason which seems logical in explanation of this observation is that the vertebral body is cancellous bone with the rather poorly constituted blood supply common

Fig. 1.—Appearance twenty-four hours after injury: no evidence of fracture.

to that type of structure. The trauma, although disturbing bone homogeneity, with resultant nutritional interference, is not sufficient to distort body outline. Subsequent pressure on this disturbed body by weight bearing, as in walking, or by muscular pull or flexing of the spine if recumbent, serves to deform the silhouette.

From St. Anthony's Hospital.

The accompanying illustrations show examples of this type of case. Figure 1 is from a film made twenty-four hours after a slight fall by a woman, aged 80. The first lumbar vertebra shows no disturbance. The discomfort, which was chiefly pelvic, continued, and after undue delay the patient was returned for the film from which figure 2 was made. This shows a

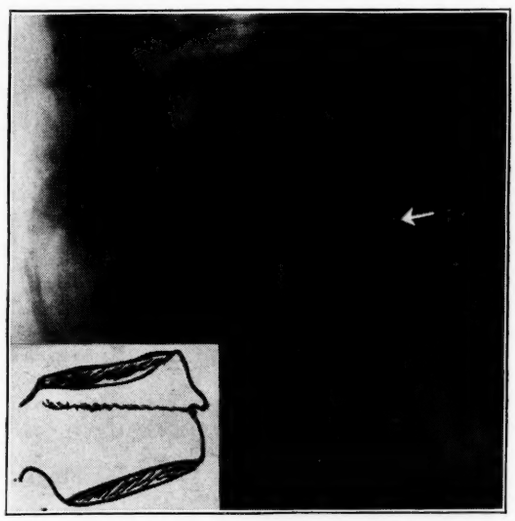

Fig. 2.—Appearance twenty-four days later: definite compression fracture of the first lumbar vertebra.

definite wedging and a break in the continuity of the more compact bone of the anterior margin of the silhouette.

It is probable that many, if not all, of the cases of so-called Kümmell's disease belong to this class of injury; that is, compression fractures not recognized at the time of injury and probably not studied again until the diagnosis of Kümmell's disease is made. It is seriously doubted that Kümmell's disease should be considered a disease entity.

A most striking thing in the study of a number of reports of vertebral body compression fractures is the surprisingly slight degree of trauma that may be responsible. A degree of wedging that is seldom seen occurred in a heavy woman, aged 60, as the result of a five or six inch drop when an earthenware chamber on which she was sitting split. Another with marked deformity resulted from the impact caused by an automobile, on the rear seat of which the patient sat, crossing a "dip" in the street. Several have been from missteps of from eight inches to three feet.

One should always bear in mind that the injury is frequently at a much higher level than the pain. Two patients have been seen, each with both the eleventh dorsal and the first lumbar vertebral bodies fractured, of whom the surgeon requested a study of the sacroiliac region, and quite naturally, for there was no discomfort elsewhere.

It is, of course, superfluous to mention that no roentgen examination of the spine is complete that does not include a lateral view; in fact, this is usually the only film of definite value.

CONCLUSIONS

1. There are compression fractures of the vertebral bodies which are not apparent immediately after injury but which may be demonstrated some days later.

2. Reexamination, after an interval of from ten days to three weeks, should be made in all cases in which discomfort persists.

3. This type of case probably constitutes the so-called Kümmell's disease. It is doubtful whether Kümmell's disease is an entity.

4. Seemingly very slight direct and indirect violence may be responsible for major compression fractures of vertebrae.

5. The lesion may exist from five to seven vertebrae above the site of pain.

6. A lateral view of the bodies is absolutely essential.

ROUTINE USE OF NEOSKIODAN IN SUSPECTED INJURIES TO THE GENITO-URINARY TRACT

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CHICAGO

My purpose in this paper is to point out what a valuable asset excretory urography is in making an early diagnosis in patients suffering with trauma of the genito-urinary tract. It is valuable not only in a positive way but in a negative way as well. Every surgeon recognizes the importance of early diagnosis of trauma, or what is commonly known as internal injuries. Many patients have been lost because of watchful waiting, and many patients have been operated on who could have made a recovery without surgical intervention. This is true not only of trauma but of other pathologic conditions as well. One usually assumes that a person who has been injured was normal until the time of the injury. I have found many times in my observations that a number of these patients had a pathologic entity before the trauma took place. This pathologic condition, observed at the time of the injury, makes the picture more difficult. The problem at this time is to determine whether the pathologic condition existed before the trauma or whether the trauma was the cause of the condition. In passing I cannot help but point out and emphasize the value of excretory urography in patients who have not been injured. It is particularly valuable in tumors, stones, anomalies, tuberculosis and other advanced infections of the kidney. I hope to be able to show the value of excretory urography in tumors of the kidney. In some of those cases a negative result is obtained on the affected side, which, when interpreted, means the pathologic side. This is true also in far advanced infections of the kidney, and many times it points the way for further investigation in renal tuberculosis.

This paper would not be complete without mentioning the extreme value of excretory urography and the indication for its use in children. This is true not only in trauma but also in many suspected pathologic conditions of the genito-urinary tract. The ease with which it is administered should be emphasized. Of course, the size of the dose in children is always much less than that in adults.

We have found, both in Cook County Hospital and in the Research Hospital, many cases diagnosed that would otherwise have been discharged from the hospital without our even knowing that the patient had any pathologic condition of the genito-urinary tract.

The subject of trauma should be a chapter in itself. In industrial surgery it is very important to know whether the patient is suffering with an injury to the genito-urinary tract or whether that tract can be ruled out; so it is easy enough to see what an important part excretory urography would play in that type of case. For instance, a patient has received an injury and it is difficult to tell whether the injury involves the genito-urinary tract or the organs of the peritoneal cavity. The administration of skiodan will rule the genito-urinary tract either negative or positive and will help the surgeon that much in making an immediate diagnosis. After all, that is the entire point of this paper —immediate diagnosis.

In the past, one had to depend entirely on the history of the injury plus the physical examination. In many instances external trauma is not present. Blood in the urine is the most common observation. Shock may or may not be present.

I believe that the value of excretion urography is an adjunct in completing the diagnosis. I am of the opinion, however, that this procedure, when indicated, taking into consideration shock, gives valuable information as to the immediate procedure in management.

In this paper I shall consider the genito-urinary tract in the following order: trauma of the kidney, ureter, bladder and urethra. Conservatism should be the password in relation to trauma of the kidney. Three of the most important factors should be taken into consideration: first, the general condition of the patient; second, the extent of the injury, and, third, the element of time.

The question of shock, which is a most important one, will be managed in the same way as it would be in any patient suffering from a similar condition. At this point I would like to emphasize that the use of intravenous urography is left to the discretion of the surgeon in charge of the injured patient.

The next question of importance is to find out the extent of the injury to the kidney. Is the rupture within the kidney itself, has it extended through the true capsule, or has it invaded the peritoneal cavity? In other words, it is imperative to know whether one is dealing with an extracapsular condition or an intraperitoneal tear.

The foregoing statements are of the utmost importance, since the management depends so much on the interpretation of this condition. I believe that excretion urography at this point is of the greatest advantage. If the rent is extraperitoneal and the amount of extravasation is small, I advise watchful waiting and, again, repetition of the first operation; viz., the making of a pyelogram to find out whether or not the extravasation has increased in size. This is most important because so much depends on whether or not the hemorrhage is entirely within the kidney and is draining into the bladder. In other words, the question of decision plays an important rôle in all cases of traumatic kidney.

Other factors must not be forgotten, such as blood pressure, blood counts and hemoglobin, all of which add to the information desired in this class of case. So again I want to emphasize the question of time.

First, as stated before, conservatism should not be forgotten. If the rent is intraperitoneal, immediate surgery is indicated, provided the general condition permits. In many of these cases the kidney may be

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detached from its pedicle and rest in the peritoneal cavity or in the perinephric space without any apparent injury to the patient externally.

CASE 1.—A boy, aged 13 years, entered the hospital, Jan. 1, 1930, with a severe pain in the right side of the back. He had sustained an injury while sliding down a hill on a low sled, which was diverted and ran into a tree. He was picked up unconscious and taken home and remained in shock for an hour. There were no marks or abrasions on the skin nor any symptoms of external injury. On first urination macroscopic blood was seen in the urine. He was treated by a local physician for about a day and a half. The urine contained much blood at times and at other times appeared clear. On entrance to the hospital he had the appearance of being very sick, very anemic, with the conjunctiva perfectly white; the finger nails on pressure showed no change; hemoglobin was 50 per cent. Skiodan was given. He was given a blood transfusion and taken to the operation room, where the injured kidney was removed. On opening the perinephric space I was confronted with a large hematoma. After the hematoma was removed the kidney proper was examined, which showed the kidney to be ruptured and appeared to be broken in a transverse position. When the forceps was put on a clot was disturbed and I encountered a hemorrhage momentarily. This was controlled by the application of the hand to the renal artery, and I might add that a hemorrhage from the renal artery can best be controlled by engaging the vessel between the thumb and the index finger. This was held until forceps engaged the vessel and a ligature was applied. The operation was completed in the routine way. The patient made an uneventful recovery.

Fig. 1.—Ruptured kidney and partially ruptured ureter, shown by excretory urography.

The second case was similar to the one just reported other than that the patient was a girl.

CASE 2.—A girl, aged about 14 years, sustained an injury while running and was pushed into a projection of timber on the playground. She likewise was treated two or three days before being sent to the hospital. She had about the same pathologic condition as patient 1. A diagnosis was made by using excretory urography, which immediately told that there was a ruptured kidney. This patient, like patient 1, had no external marks of trauma, and was sent to the general surgical section because of the pain in the abdomen. She had all the appearance of a patient suffering with a disturbance in the peritoneal cavity and had been under observation before she was sent to the department of genito-urinary surgery. Diagnosis was quickly made and surgical intervention employed at once. She also had a rupture of the upper portion of the ureter.

I mention these cases as examples of the value of excretory urography in trauma of the genito-urinary tract. It so happened that in both cases the pathologic changes of the kidney were so great that removal of the organ was necessary. I have seen a number of cases in which the kidney was sutured after the removal of clots and the patient made an uneventful recovery. A close examination of the kidney is therefore important regardless of how much blood or how many blood clots are in the perinephric space before it is determined whether nephrectomy is indicated.

I believe that in all cases of intraperitoneal tear the kidney should be immediately removed, whether or not it is partially detached. Of course, it should always be removed when it is totally detached.[1]

The big problem is in the class of cases in which the hemorrhage continues for some days. When the injury is confined to the kidney, the problem is to decide whether surgical intervention is the best procedure or whether the patient should be allowed to bleed with the hope that a hematoma will form which will prevent further hemorrhage. I might add that in many cases, while the hemorrhage ceases and the urine becomes clear, considerable pathologic change will develop. In three cases at Cook County Hospital in later years a complete atrophy of the kidney was observed. In one case a giant hydronephrosis appeared.

When hemorrhage is extracapsular, I advise the removal of all clots of blood and a careful examination of the kidney. By so doing one is able many times to save the kidney, which is the second consideration in the management of all these cases. I do not believe that in every case in which there is a rupture of the kidney and in which a large hematoma is present a nephrectomy is indicated. I believe that the kidney can undergo a great deal of insult and yet, when properly managed, will recover. So, as stated, if the clots and the hematoma are removed the bleeding points are sutured and a drain is introduced in the prekidney space, the patient will make a good recovery, and a good functioning kidney will be the happy result. However, there is one point that I should like to make; i. e., the introduction of paraffin catheters for the class of case

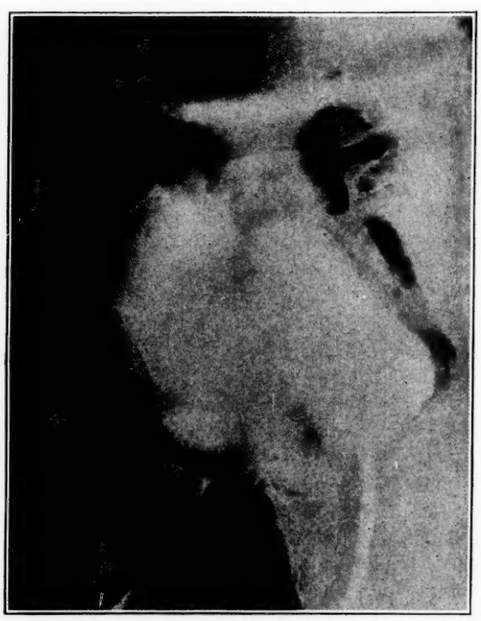

Fig. 2.—Ruptured bladder, revealed by injecting a contrast fluid into the bladder.

1. In a case in which one kidney was found in the peritoneal cavity, the patient died following operation. In another case, due to a bullet wound in which the kidney was entirely detached, the patient made an uneventful recovery.

in which the injury is within the kidney and no hematoma appears. By so doing, pathologic changes of the kidney due to pressure necrosis may be entirely avoided.

In all cases of trauma of the kidney a flat roentgenogram should be made to determine the condition of the kidney on the opposite side. In all kidney surgery this should be done.

Rupture of the ureter may be divided into two general headings: Is it a complete or an incomplete tear of the ureter? The management in this group will be the introduction of a ureteral catheter at the time of injury in order that a continuity of the ureter may be present, which is easily done with a catheter in situ. One or two sutures may be employed. In many cases the catheter itself will suffice. By so doing, a drainage has been established and the regeneration of the ureter will follow. In trauma of the urinary bladder the only question to decide is whether the tear is intraperitoneal or extraperitoneal. This, too, is well described with the use of excretion urography. I believe that all the other methods heretofore employed, such as the Vaughan-Rudnick test, the use of injection of fluid, which I heartily oppose, and the use of skiodan, will tell exactly where the rent is and the extent of the extravasation.

In all cases of intraperitoneal tear, an abdominal incision is done as a routine, and repair of the tear in the bladder, a drain to the peritoneal cavity, and the introduction of a retention catheter is the method advised. If I am dealing with an extraperitoneal condition, I repair the bladder, institute drainage in the prevesical space and use a retention catheter.

There is a considerable amount of difference of opinion as to this procedure. The industrial surgeon usually advises the use of a retention catheter and takes a chance as to the recovery. This, of course, depends altogether on the condition of the urine, whether one is dealing with an infected or an uninfected urine. Slough may take place with a superficial urinary extravasation.

The question of the urethral rupture is one that has caused an endless chain of argument. I believe that the most importance factor is to establish immediate drainage through the urethra and, when possible, to do a suprapubic cystotomy and a retrograde sound, using the Davis method of two sounds, one through the meatus and the other through the bladder, thereby introducing a retention catheter.

The hemorrhage in the perineum due to trauma will usually take care of itself after the introduction of a large catheter, but if a hematoma should appear it is quite simple to open it and drain it. However, when the severed ends of the urethra are not intact, it is easier to approximate the two ends if a urethral catheter has been introduced by the method previously mentioned. In other words, the urethra now contains a splint by virtue of the catheter being in place. This simplifies the method of doing an end-to-end anastomosis of the urethra. It is not necessary to make this anastomosis water tight. I have modified the Davis sounds so that they are a little more adaptable to the case (fig. 2).

Much credit should be given to George C. Davis, Chicago, for devising this method of using two sounds in managing a ruptured urethra.

CONCLUSIONS

1. Excretory urography is of value in early diagnosis of trauma of the urogenital tract.

2. It is also of value in early surgical intervention when indicated.

3. The question of shock and time is an important factor.

4. A ruptured kidney is not always an indication for nephrectomy. In many cases the clots may be removed and the kidney sutured with good results.

5. The management of a ureteral tear is accomplished by doing a retrograde catheterization and screwing this catheter into one introduced from below.

6. Excretory urography in rupture of the bladder will show whether one is dealing with an intraperitoneal or an extraperitoneal tear.

7. In rupture of the urethra it is important to use two interlocking sounds, one introduced from the bladder through a suprapubic cystotomy and the other through the meatus, thus establishing coaptation of the severed ends of the urethra and drainage.

8. There is no place in surgery in which judgment and common sense is such an asset at it is in traumatic surgery.

25 East Washington Street.

ABSTRACT OF DISCUSSION

DR. G. H. EWELL, Madison, Wis.: I am in accord with Dr. McKenna's views regarding the value of intravenous urography in traumatic injury to the urinary tract. What effect will the associated shock and the actual trauma to the kidney itself have on its function and its ability to excrete the dye? Dr. McKenna mentioned this point but did not say how soon after injury the cases in his series were studied. Dr. Zwick has shown that temporary inhibition of kidney function relative to its power to excrete the dye does occur. In the two cases that I saw, six hours had elapsed before intravenous urography was done. In both cases there was apparently no disturbance in the power to excrete the dye. In cases of traumatic injury of the kidney there is always an associated paralytic ileus and therefore considerable obscuring of the x-ray films by gas. I therefore find it necessary to make many exposures in order to get a composite picture of the urinary tract. Serial pyelograms, as suggested by Dr. Moore, would probably be a much more satisfactory procedure. I am sorry to disagree with Dr. Wesson concerning the value of intravenous urography in these cases, as I am of the opinion that it represents one of its most valuable uses so far as diagnosis is concerned. However, the surgical management of such cases must depend on the clinical observations.

DR. MOSES SWICK, New York: I think it necessary to emphasize that all accident wards in hospitals should make it a rule to call in a urologist in a consulting capacity. The importance of proper diagnosis is based on various aspects. One, the trauma to the kidney is capable of producing functional damage, and permanent damage as a result of extravasation. Furthermore, urography can be used to assist in the study of the secretions of the various portions and to show what processes are taking place in the kidney as to whether there is return of function or not. Similarly, with injuries to the ureter and bladder these may also react on the kidney and produce functional inhibition.

DR. A. I. FOLSOM, Dallas, Texas: The technic that Dr. McKenna showed is very important in handling ruptured, traumatized or severed ureters. I feel that sutures should not be taken in them. It is sufficient to splint the ureter with a catheter and it is surprising what it will do. Dr. McKenna's method of invaginating these ureters and making it a closed operation is an excellent procedure.

DR. CHARLES M. MCKENNA, Chicago: Dr. Folsom's remarks concerning sutures is correct. It is seldom that I introduce a suture in the closing of a ureter. I believe it is indicated when one is repairing the ureter after a rupture or injury. This is done after a catheter is introduced. If one

suture is introduced after the distal and proximal ends are brought together, the ureter will heal. The second point concerns the ruptured urethra. I have done away with the open operation in this type of injury. At least I have done most of the operations by doing a suprapubic cystotomy and introducing one sound into the posterior urethra through the bladder, while the other sound is passed through the meatus down through the urethra until the two sounds click. The sound that I speak of is a modification of the George Davis sound. I have modified it so that the beak is longer, in order to make it easier to pass back into the bladder. After the sounds click, they are pushed back into the bladder through the meatus. The distal end of the mushroom catheter is threaded onto the sound already in the bladder, and the sound is withdrawn through the urethra, which pulls the distal end of the catheter through the meatus. The indwelling catheter then forms a splint for the urethra. This technic does away with an external urethrotomy. If one feels that the broken ends of the urethra are not in contact, it is simple enough to cut and introduce a suture.

CLINICAL SIGNIFICANCE OF ROENTGENOMETRY IN OBSTETRICS

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Nearly 400 years has elapsed since Arantius [1] (1572) pointed out the importance of the configuration of the bony pelvis in its relation to the successful outcome of labor. At first glance, therefore, it seems surprising that only within our own time has accurate knowledge become available regarding the shape and size of the bony pelvis in the living subject. It is a fact, however, that until the advent of roentgen methods of pelvimetry such information was lacking. Furthermore, the most significant pelvimetric maneuver up to this time was that first described by Smellie [2] and later by Baudeloque [3] for determining the diameter of the diagonal conjugate.

That roentgen pelvimetry has not been more generally employed is probably due to a number of factors; namely,

1. The majority of women will be delivered spontaneously whether or not pelvic measurements of any sort are made.

2. The medical profession does not readily adopt suggested changes in an established routine method of handling obstetric cases.

3. The adoption of new diagnostic methods often increases the patient's expense.

4. The present methods of estimating the degree of disproportion, such as palpation of the fetal head and the test of labor, although entirely speculative, are apparently satisfactory in many cases.

5. In the majority of instances, roentgen pelvimetry cannot be performed by the obstetrician himself but requires the assistance of a roentgenologist.

6. The great value of roentgenometric diagnosis is generally unappreciated.

Of course other factors may be involved, but it is certain that none of those just named present a sound argument against the use of roentgenometry in obstetrics. The value of this procedure rests on the following thesis: If knowledge of the shape and size of the bony pelvis is indispensable to the practice of scientific obstetrics, roentgen pelvimetry is a sound procedure and its routine use, particularly in primiparous patients, is also indispensable.

With respect to external pelvimetry as applied to the pelvic brim, I can only repeat what I [4] have recently pointed out in a comparative study of pelves, that measurements so obtained are significant only as guide posts and, in certain instances, may even be misleading.

In this paper I shall indicate what my own experience with roentgen pelvimetry has taught me. I shall not discuss technical procedures beyond stating that the method [5] which has been developed in this clinic is an unusually desirable one in that it is accurate, simple and inexpensive. Moreover, in the great majority of cases a satisfactory roentgenogram can be obtained by the use of sensitized paper, a type of film that we have recently adopted. Paper film has a great advantage over the celluloid film, since the paper record can be incorporated in the history and filed with other pertinent data.

Early in our work we learned that external pelvimetry fails to give uniformly accurate information as to the shape and size of the superior strait. This is especially true in certain thin, undersized individuals. In many patients of this type, although the external pelvic measurements suggest a generalized pelvic contraction, the roentgenograms disclosed a relatively capacious pelvis, and spontaneous birth of the normal size infant was the rule. On the other hand, we noted that in many thick boned, short, squatty individuals with similar external measurements the roentgenograms revealed the presence of contracted pelves, and these patients of course presented during labor the problems usually associated with that entity.

In certain of our cases we found a moderate pelvic contraction, which was limited almost wholly to the transverse diameter of the superior strait. This phenomenon interested us greatly, particularly because we came on an increasing number of pelves that presented this anomaly. In a relatively large group the length of the transverse diameter was so shortened as to equal that of the anteroposterior diameter. In some instances the transverse diameter was actually less than the anteroposterior diameter, a characteristic of a true dolichopellic or "anthropoid" pelvis.

Because of the apparent relationship between a shortening of the transverse diameter and a primary or transient, and a secondary or persistent, occipitoposterior presentation, accurate information regarding the length of this diameter is of clinical importance. My first communication,[6] in 1930, emphasized this point with respect to generally contracted and simple flat pelves. In another communication,[7] in 1932, I reviewed my observations on sixteen consecutive patients in whom the fetus presented either in an occipitoposterior or high transverse position. In every pelvis of this group there was a relative or real shortening of the transverse diameter of the superior strait. In May 1932 I [8] presented to the American Gynecological Society my observations on twenty consecutive patients whose pelves showed a relative or real shortening of

From the Department of Obstetrics and Gynecology, Yale University School of Medicine.

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2. Smellie, William: Theory and Practice of Midwifery, ed. 8, London, 1774.
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5. Thoms, Herbert: Radiology **21**: 125 (Aug.) 1933.
6. Thoms, Herbert: Am. J. Obst. & Gynec. **19**: 539 (April) 1930.
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the transverse diameter of the superior strait. In every instance a primary or secondary occipitoposterior position was found when the patient fell into labor. In this paper I stated that the extraordinary incidence of primary and secondary occipitoposterior presentations noted indicate that this type of pelvis is a most potent factor in the production of this position. In a previous paper I have suggested the reason for this mechanism and have pointed out that an actual or relative shortening of the transverse diameter of the superior strait results in a limitation of space that is greater in the anterior than in the posterior half of the superior strait. Under these circumstances it appears that when the head descends at the beginning of labor the occiput is forced to rotate posteriorly. This point of view is substantiated by the recent work of Caldwell and Moloy,[9] who state that "in the anthropoid type of pelvis engagement is possible only in the anteroposterior diameter, as compensation exists in the posterior pelvis, the anterior part of the inlet being narrow." These authors are to be congratulated for their excellent work on the classification of pelves. If the reader will acquaint himself with the terms "gynecoid," "android" and "anthropoid" as used by them he will recognize two facts: first, the importance of such a working classification as suggested by Caldwell and Moloy, and, second, the importance of the clinical application of roentgen pelvimetry. It has become a dictum in our clinic that, when an "anthropoid" type of pelvis is diagnosed ante partum, a primary and possibly a secondary occipitoposterior presentation may be expected during labor. It will be readily appreciated that, when the occiput is directed obliquely posteriorly in an anthropoid pelvis, a modification of the usual method of delivery by forceps may facilitate the mechanism of descent through the pelvic canal. A similar modification of method may be applicable in the extraction of the aftercoming head in breech deliveries. In both these conditions the aim is to enable the fetal head to pass through the canal to the best mechanical advantage.

As our studies in roentgen pelvimetry progressed, we felt the additional need of a method of determining the size of the fetal head in utero. In developing this method we noted the frequency with which the unengaged fetal head lay with the occipitofrontal diameter parallel to the transverse diameter of the superior strait, with the occiput directed either to the right or to the left. Under these circumstances if the patient is placed in a supine position a roentgenogram of the fetal head in utero will cast a shadow which is really an enlarged profile of the fetal head. By adapting this method of roentgen pelvimetry, measurement of the occipitofrontal diameter of the head in utero becomes a simple matter.[10] On many occasions we have checked the method of cephalometry by determining the diameter of the unmolded head before and after cesarean section and have found that the procedure yields accurate results. Information regarding the length of the occipitofrontal diameter has given us a useful means of computing the biparietal diameter, and here again our figures have checked with a surprising accuracy.

As these studies progressed it occurred to us that information regarding the length of the occipitofrontal diameter might be helpful as a means of determining the maturity of the fetus in utero.[11] The analysis of a large number of fetal weights and measurements, which included the diameters of the head and the body length, showed that the relation of the length of the occipitofrontal diameter to these measurements was quite constant. This was especially true with respect to the crown: heel measurement. We have successfully made use of this information in determining the maturity of the fetus in utero, the importance of which is obvious when the induction of labor is considered in patients suffering from a toxemia, cardiac complications or pulmonary tuberculosis.

As experience in interpreting the results of roentgenometric pelvimetry increases, the so-called test of labor should be less employed. In making this statement I do not underestimate the importance of the force of the uterine contractions or the ability of the fetal head to mold. These also are important factors of the problems associated with disproportion. On the other hand, it should be realized that the greater the exact knowledge of all the factors concerned in the problem of disproportion, the less reliance will be placed on the rule of thumb methods now in use.

I have a firm conviction that roentgen pelvimetry has a distinct place in the examination of every primiparous woman. Many times I have examined patients whose external measurements were within the limits of normal but whose pelves were in reality contracted. On the other hand, certain patients whose external measurements have been so shortened as to suggest the advisability of delivery by cesarean section have been shown by roentgenometry to have adequate pelves and have been delivered spontaneously.

CONCLUSION

In concluding this short review of my present attitude toward roentgen methods as applied to clinical obstetrics I should perhaps mention their importance in the diagnosis of fetal position, the presence of fetal abnormalities, the presence of multiple pregnancy and perhaps more especially in the diagnosis of a rachitic deformity of the sacrum.[12] Certainly, as was pointed out in the first part of this paper, recent knowledge of the wide incidence of the android and the anthropoid type of pelvis in otherwise "normal" individuals makes a knowledge of these conditions imperative for the practice of scientific obstetrics. Finally, I would recall our recent adoption of a technic in which sensitized paper is being used instead of a celluloid film. This technic, together with the ability of making pelvigrams of several patients at one appointment, has reduced the cost of the procedure to a real working basis for ward patients.

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10. Thoms, Herbert: Fetal Cephalometry in Utero, J. A. M. A. **95**: 21 (July 5) 1930.
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12. Thoms, Herbert: Am. J. Obst. & Gynec. **14**: 45 (July) 1927.

Pneumothorax Treatment for Bronchiectasis.—I feel pretty certain that if bronchiectasis were always diagnosed early—as it indeed should be nowadays since the use of iodized oil has proved an infallible method of demonstrating the presence of dilated bronchi—and if the pneumothorax treatment were always initiated as soon as the diagnosis had been established, the proportion of recoveries would increase very substantially. Many years were lost before the necessity of early pneumothorax treatment in ulcerative tuberculosis of the lung was universally admitted. But since it has been admitted, the proportion of successes has become considerably greater than it was in the days when pneumothorax was regarded as an exceptional measure and, so to say, as a last resource. I venture to predict that the pneumothorax treatment of bronchiectasis will be a repetition of the same story.—Rist, E.: Collapse Therapy of Bronchiectasis, *Ann. Int. Med.* **7**:417 (Oct.) 1933.

Clinical Notes, Suggestions and New Instruments

CORTIN IN THE TREATMENT OF PROGRESSIVE MUSCULAR DYSTROPHY

RALPH W. MENDELSON, M.D., ALBUQUERQUE, N. M.

In reporting this case I am not unmindful of the fact that conclusions may not be drawn from a single observation; yet results were so prompt and even spectacular that I am prompted to call attention to the treatment used in order that others working in a larger field may try it out and, if found successful, render at least symptomatic relief to a class of patients at present more or less incapacitated.

After twenty injections of cortin patient able to rise from floor without assistance.

A man, aged 30, a Mexican, first noticed some weakness in his left arm and hand about July, 1930. At that time his weight was 131 pounds (59.4 Kg.) and he was working as a stock clerk in a general store. This weakness and loss of power gradually increased with no periods of intermission up to the time he applied for treatment, July 6, 1933. On that date he tried to shift a keg of nails and found to his surprise that he was unable to do it.

The family history was negative; there were no other cases and there was no history of tuberculosis, cancer, or nervous or mental diseases. The patient's past history was irrelevant; he had had mumps, measles and typhoid. There had been no surgical operations and his habits were normal. He stated that he had had no venereal diseases. The patient complained of loss in weight, transient pains in the affected muscle groups, extreme weakness, inability to walk, insomnia and loss of sexual power.

The patient was emaciated, weighing 103 pounds (46.7 Kg.). He had some difficulty in swallowing, a slight disturbance in his speech, and marked atrophy in the following muscles: the pectorals, latissimus, serratus magnus, rhomboids, trapezius, biceps, brachials, supinator longus and triceps, erector spinae, the glutei and the thigh muscles. There were no fibrillary contractions, the reflexes were practically normal and sensation was unimpaired. The sphincters were not affected.

The Wassermann reaction was negative; the red blood cell count was 5,500,000 and hemoglobin 90 per cent on the Dare scale. The urine and stool examinations were negative. The white count was normal and the blood pressure was 90 systolic, 70 diastolic.

The treatment suggested itself in view of the fact that, although the patient suffered from a distinct disease entity, he presented himself as having "progressive asthenia," and although I entertained no hope for a cure I felt that if cortin relieved his symptoms to a degree it would be worth while.

I started treatment, July 30, using 1 cc. of cortin subcutaneously every day for ten days. There was no particular change at the end of that time. In view of the cost of the cortin I was forced to limit the injections to once every three days and at the end of the second ten injections the patient stated that his cramplike pains had left, he was able to sleep and his appetite had materially increased. His sexual power was returning and he could walk without assistance. At the present time, Oct. 25, 1933, his weight is 108½ pounds (49.2 Kg.). The blood pressure is 110 systolic, 80 diastolic; he can ride a bicycle several blocks and a few days ago went dove hunting, walking a distance of about 5 miles and carrying a shotgun. His speech difficulty and swallowing have returned to normal. He is an entirely different man and his outlook on life that of a normal human being.

If cortin should act only 50 per cent as well in this type of disability as insulin does in diabetes it would be well worth while. It is hoped that others will try it out and report on a series of cases.

608 First National Bank Building.

FOREIGN BODIES IN STOMACH

E. RAYMOND HILDRETH, M.D., BAY SHORE, N. Y., AND ROBERT B. CASEY, M.D., CENTRAL ISLIP, N. Y.

This case is reported because of its general interest and to add it to the literature on the curiosities of medicine.

M. H. L., a woman, aged 46, married, was admitted to the State Hospital at Central Islip, Feb. 10, 1932. The diagnosis was involution melancholia with suicidal tendencies.

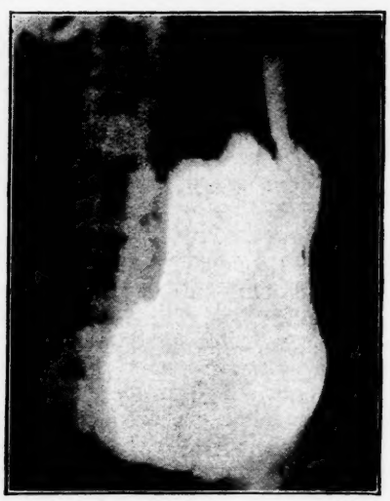

Fig. 1.—Appearance of stomach, September 11, suggesting metallic mass.

Sept. 6, 1933, she vomited and complained of constipation. A large hard mass was palpable in the upper left quadrant of the abdomen. Liquid petrolatum and enemas were administered daily, with little appreciable effect on the mass. September 11, a roentgenogram showed a mass of what appeared to be metallic spoons in the stomach. September 12, a laparotomy was performed. An incision was made in the upper anterior surface of the stomach and the following objects were removed: forty-eight teaspoons, one teaspoon handle, three bolts, one nut, one prune pit, one button,

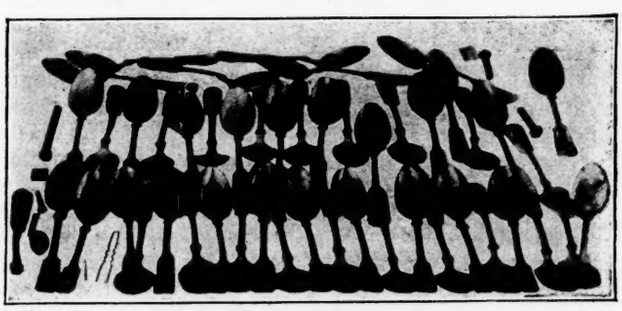

Fig. 2.—Articles removed from stomach, September 12.

one small piece of glass, two pieces of spring wire, one needle, one piece of cinder, one hair pain and one lead pencil.

Recovery from the operation was uneventful except for slight infection of subcutaneous tissue. The mental condition continued disturbed, requiring restraint.

26 Ocean Avenue.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary.

DIPHTHERIA TOXOID, ALUM PRECIPITATED (REFINED).—Diphtheria Toxoid (Havens).—The work of Havens and others has shown that diphtheria toxin modified by the method of Ramon may be precipitated by the addition of potassium aluminum sulphate. The resultant water insoluble precipitate, which contains the antigenic properties, is purified by washing. More than 50 per cent of the proteins contained in the original crude toxoid are removed during the process of purification.

Actions, Uses and Dosage.—Refined diphtheria toxoid, alum precipitated, is used for active immunization against diphtheria. It is administered subcutaneously, preferably at the insertion of the deltoid muscle, in one dose. Owing to the presence of potassium aluminum sulphate in the product, absorption is delayed. A nodule persists at the site of inoculation for several days.

The National Drug Co., Philadelphia.

Refined Diphtheria Toxoid (Alum Precipitated).—Prepared from a seven day culture of the diphtheria bacillus which yields toxin having an L+ dose of not more than 0.2 cc. The toxin is treated with formaldehyde until its toxicity is so reduced that five human doses will cause no local or general symptoms of diphtheria poisoning when injected subcutaneously into guinea-pigs. The toxoid is precipitated with a solution of alum, washed, and then suspended in physiologic solution of sodium chloride to which merthiolate has been added. The product is tested for antigenic potency according to the method prescribed by the National Institute of Health: guinea-pigs, weighing 500 Gm., given one human dose, must produce at the end of six weeks at least two units of diphtheria antitoxin in each cubic centimeter of blood.

Marketed in packages of one 0.5 cc. vial, one 5 cc. vial and ten 0.5 cc. vials, representing, respectively, one, ten and ten immunizing doses.

E. R. Squibb & Sons, New York.

Refined Diphtheria Toxoid Alum Precipitated-Squibb.—Prepared by treating diphtheria toxoid with a solution of alum until complete precipitation is produced. The precipitate is washed with and suspended in physiologic solution of sodium chloride. The product is tested for antigenic activity according to the method prescribed by the National Institute of Health: guinea-pigs, weighing 500 Gm., given one human dose, must produce at the end of six weeks at least two units of diphtheria antitoxin in each cubic centimeter of blood.

Marketed in packages of one 0.5 cc. vial and in packages of one 5 cc. vial, representing one and ten immunizing doses, respectively.

PARKE-DAVIS HALIVER OIL, PLAIN (See THE JOURNAL, Nov. 18, 1933, p. 1634).

The following dosage form has been accepted:

Soluble Gelatine Capsules Parke-Davis Haliver Oil, Plain, 3 minims: Each capsule contains Parke-Davis haliver oil, plain, 3 minims, with sufficient cod liver oil to fill the capsule.

REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.

PAUL NICHOLAS LEECH, Secretary.

OCTOZONE NOT ACCEPTABLE FOR N. N. R.

The Octozone Corporation of America presented for the consideration of the Council a labile gaseous preparation called "Octozone" and the apparatus ("Electroniseur") for preparing this gas from oxygen by the action of an electrical discharge. The product is proposed for the treatment of a large variety of diseases, in particular various forms of arthritis, by local application, by baths in closed bags, by subcutaneous or intramuscular injection, by rectal administration or by mouth dissolved in water.

In the letters from the firm and in the submitted literature it is admitted that "Octozone" is a misnomer for the polymer of oxygen known by this name; that the evidence indicates that the gas is not O_3 as suggested by the inventor of the apparatus, Eugene Royer of Lyons, France. The French War Office is stated to be of the opinion that the gas may better be designated as O_4. The evidence submitted by the firm to show that the gas is not ozone was based on effects that appear to differ from those of the usually available concentrations of ozone only quantitatively; the latter gas in sufficient concentration will cause both marked and rapid deterioration of rubber and "solidification" of mercury; these phenomena were claimed by the firm to be characteristic of "Octozone" and not of ozone. As to relative effects on subcutaneous injection of ozone and "Octozone," the Council's referee has no data other than the statement of the firm that "oxygen (O_2) or ozone (O_3) injected subcutaneously or intramuscularly in the human, or experimentally in the animal, leaves a bleb or swelling lasting for a considerable time. OCTOZONE injected subcutaneously or intramuscularly even in large quantities (250 or 300 cc.) develops a very transitory swelling which rapidly disappears, in contrast to the above, giving but momentary sense of burning."

On request from the secretary that more adequate data be furnished with regard to composition of the gas, the firm enlisted the assistance of Prof. Arthur W. Ewell of the Worcester Polytechnic Institute, a recognized authority on ozone. Professor Ewell, as a result of his study, concluded that the higher form of oxygen produced by the "Electroniseur" is ozone. Professor Ewell's conclusion "is in agreement with all published experimental evidence, since this gives no evidence of the presence of anything but ozone, at concentrations comparable with those given by this apparatus."

As the evidence seems to be fairly conclusive that "Octozone" is a mixture of O_2 and O_3, the Council decided that no proprietary name for the gas could be recognized, since ozone is not a new discovery, either from a chemical or from a therapeutic standpoint.

The Council found the evidence of therapeutic usefulness submitted by the firm unconvincing. It appears that, under the impression that the gas was a new preparation, investigators have used it on patients without preliminary work on animals; at least such work was not reported in the available data. However, the firm stated: "We have carefully followed the experiences of those who are using the apparatus here, and also have instituted a series of bacteriological and animal experiments to confirm the observations of investigators in England and France." The results of the latter investigations have not been submitted to the Council.

The case reports, all of which are from France and England, are without exception uncontrolled and the information provided is far from complete. In some of the reports the alleged results defy credibility; for instance, "20 cc. Octozone injected deep into forearm muscles" is claimed to have resulted in recovery without recurrence in an old case of malignant tertian malaria. Or, again, two 400 cc. injections of Octozone by rectum are said to have cleared up symptoms of internal hemorrhoids.

In the treatment of arthritis the patients are usually enclosed in gas tight bags tightly fitted about the neck, which are then filled with Octozone for variable periods, according to the reports. The "baths" are repeated at intervals. In the treatment of cutaneous ulcers, the gas is sprayed directly on the lesions. It is also suggested that colds may be aborted by intranasal application. Among the various conditions treated with Octozone are furunculosis, varicose ulcer, fibrositis, ulcerative colitis, sciatica, "rheumatism," subphrenic abscess, osteomyelitis, cystitis, hemorrhoids, and Oxyuris vermicularis infestation.

It is difficult to understand how ozone (which in concentrations of 5 to 10 parts per million cannot be inhaled without severe irritative effects leading even to fatal pulmonary edema) can be injected into the colon or under the skin in much higher concentration without dangerous effects. About fifteen years ago investigations made for the Council in testing ozone devices proposed for purifying the air showed that *germicidal* concentrations were very highly irritant to the respiratory passages. The use of ozone in the treatment of wounds, for instance, is not new, and according to G. Stoker, who employed it fairly extensively before and during the war, it has a field of therapeutic usefulness, although this is very limited. This is upheld also by Solis-Cohen and Githens (Pharmacotherapeutics, New York, 1928, D. Appleton & Co., p. 495), who report similar

results. It appears, then, that the intelligent employment of ozone may yet find for it a therapeutic niche. But such use as it has so far received under the name "Octozone," judging from the available data, cannot but further discredit the employment of this oxidizing agent in the treatment of disease. No controlled experiments made with oxygen or air alone were reported; apparently no effort was made to determine whether or not the marked perspiration incident on the "baths" may have been a factor in the reported improvement of some of the cases; little or no objective data indicating recovery is furnished; the gas apparently has been administered by every imaginable route, with seemingly reckless abandon.

A statement of the Council's consideration of Octozone was sent to the manufacturer with the usual request that the firm consider means of making the product acceptable. No reply having been received from the firm after the lapse of three months, another letter was sent by registered mail. The firm again failed to reply. The Council declared Octozone unacceptable for New and Nonofficial Remedies because, according to the available evidence, it is the well known ozone marketed under a proprietary name with extravagant, unwarranted and even dangerous therapeutic claims.

Committee on Foods

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG, Secretary.

HERSHEY'S MILK CHOCOLATE
HERSHEY'S MILK CHOCOLATE (5 cents)
HERSHEY'S MILK CHOCOLATE PENNY BAR
HERSHEY'S MILK CHOCOLATE KISSES

Distributor.—Chocolate Sales Corporation, Hershey, Pa.

Manufacturer.—Hershey Chocolate Corporation, Hershey, Pa.

Description.—Milk chocolate, containing cane sugar, milk, cacao butter and chocolate.

Manufacture.—Milk produced under company inspection and regulation, conforming to standards of New York and Pennsylvania, is pumped to holding tanks, where a definite quantity of sucrose is added. The sugar-milk solution is condensed under "vacuum" to a viscous mass, machine mixed with the formula proportions of "chocolate liquor," dried to a coarse powder, thoroughly ground with a specified quantity of cacao butter, is standardized to a proper viscosity with more cacao butter if necessary, molded into desired shapes, and automatically wrapped in aluminum foil.

Analysis (submitted by manufacturer).—

	per cent	moisture- and fat-free basis, per cent
Moisture	0.6	
Ash	1.7	6.2
Ash insoluble in water	1.3	
Ash insoluble in acid	0.01	0.2
Fat	33.6	
Cacao fat	27.3	
Milk fat	6.3	
Total nitrogen	1.3	
Protein (noncaffeine and nontheobromine N × 6.25)	8.4	
Casein	4.7	
Sucrose	44.4	
Lactose	8.3	
Whole milk solids (estimated)	21.5	
Crude fiber	0.4	6.0
Carbohydrates other than crude fiber (by difference)	55.1	
*Theobromine	0.16	
*Caffeine	0.01	

* By Prochnow's modification of the Beckurts-Fromme method, Arch. d. Pharmaz. **247:** 698, 1910.

Calories.—5.6 per gram; 159 per ounce.

Claims of Manufacturer.—Complies with the United States Department of Agriculture definition and standard.

VAN CAMP'S PURÉED PRUNES

Manufacturer.—Van Camp's, Inc., Indianapolis.

Description.—Sieved prunes largely retaining the vitamins and all the mineral content of the prunes used.

Manufacture.—High grade medium sized prunes are carefully inspected to eliminate any unsuitable material, are washed in a cylinder equipped with high pressure cold water sprays and are covered with a minimum amount of water, and the temperature is slowly raised to simmering and held there till the prunes are swelled and softened. The prunes and juice are drawn off and passed through a pulping machine to remove the pits; the mass is sieved through a screen with openings of a size to produce the desired fineness and texture, is adjusted with hot water to the desired consistency, and is heated and filled into enamel lined cans, which are sealed and processed.

Analysis (submitted by manufacturer).—

	per cent
Moisture	65.7
Total solids	34.3
Ash	0.9
Fat (ether extract)	0.04
Protein (N × 6.25)	1.2
Reducing sugars (as dextrose)	20.6
Sucrose	1.0
Crude fiber	0.8
Total acidity (as malic)	0.8
Pectin	2.1
Pentosans	1.1
Carbohydrates other than crude fiber (by difference)	31.4
*p*H	5.1

Calories.—1.3 per gram; 37 per ounce.

Vitamins.—The method of preparation efficiently protects the natural vitamins.

Claims of Manufacturer.—For supplementing the infant diet, has a smooth consistency, and supplies bulk without roughness.

BEWLEY'S BEST EXTRA HIGH FLOUR (BLEACHED)

Manufacturer.—Bewley Mills, Fort Worth, Texas.

Description.—Red winter wheat short patent flour; bleached.

Manufacture.—Selected red winter wheat is cleaned, scoured, tempered and milled by essentially the same procedures as described in THE JOURNAL, June 18, 1932, page 2210. Chosen flour streams are blended and bleached with nitrogen trichloride (3 Gm. per barrel) and with benzoyl peroxide mixed with calcium phosphate (½ ounce per barrel).

LACTONUT A NESTLÉ PRODUCT

Manufacturer.—Nestlé's Milk Products, Inc., New York.

Description.—A spread containing a ground mixture of spray-dried cow's milk with added milk fat and milk sugar, peanuts, and iron citrate (U. S. P.).

Manufacture.—Selected peanuts are shelled, roasted, blanched, sorted, and blended in definite proportion with spray-dried cow's milk, with added milk fat and milk sugar, and iron citrate (U. S. P.). The mixture is ground to a paste and sealed in tins in an atmosphere of nitrogen.

Analysis (submitted by manufacturer).—

	per cent
Moisture	1.9
Ash	2.9
Fat (ether extract)	37.2
Protein (N × 6.25)	23.9
Crude fiber	1.0
Carbohydrates other than crude fiber (by difference)	33.1
Iron (Fe)	0.004

Calories.—5.6 per gram; 159 per ounce.

Claims of Manufacturer.—Recommended for children. Four rounded tablespoonfuls (4 ounces) provide a pint of modified (3 per cent fat) cow's milk.

DAVIDSON'S SPUN BREAD SLICED (WHITE)

Manufacturer.—Davidson Baking Company, Portland, Ore.

Description.—A white bread made by the sponge dough method (method described in THE JOURNAL, March 5, 1932, p. 817); prepared from patent flour, water, powdered skim milk, sucrose, shortening, salt, yeast, a yeast food containing calcium sulphate, ammonium chloride, sodium chloride and potassium bromate, malt syrup, and a yeast food containing buttermilk, calcium phosphate and ammonium tartrate. The dough is twisted, which accounts for the name "Spun."

RADIOLOGIC SERVICE IN THE UNITED STATES

REPORT BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

The fourth publication of the Council's list of physicians specializing in radiology contains the names of 1,250 physicians. These have been found to comply with the "Essentials" that were formulated by radiologists and ratified by the House of Delegates of the American Medical Association.

The Council's first survey covered mainly those radiologists who were conducting laboratories of their own and included those that were connected with hospitals but did not include others, such as those who teach and supervise radiologic work in medical schools and those working in research institutions and government departments. More recently, the work has been extended to all of these fields. To assist the Council in preparing this first survey, the officials of the two leading radiologic societies cooperated with the Council's special committee by appointing qualified radiologists in all parts of the country to act as advisers. These advisers examined the credentials of applicants from their respective localities, made inspections, and advised which candidates could qualify, according to the "Essentials." This original list contained the names of 930 physicians.

From the beginning of this work the Council has emphasized the fact that the practice of radiology is the practice of medicine. The field of radiology had attracted ambitious persons of a mechanical turn of mind for the reason that the work employs mechanical devices and it appears to the uninformed public that little training or special knowledge is necessary. A large number of lay persons trained as technicians had established radiologic laboratories. In many instances, physicians themselves patronized these laboratories and thus fostered them. Often lay controlled and operated laboratories hire physicians to sign their reports and otherwise "use" their names. The designation by the Council of those qualified in radiology has been far reaching in its effects. The principles of medical ethics have been effectively stressed. Without doubt, numerous practicing physicians have been weaned away from supporting lay specialists in this field. The opposition to lay practitioners entering x-ray work independently has been efficacious. Improperly qualified physicians are being dissuaded from holding themselves out as radiologists. Instances are not lacking in which certain practicing radiologists have been induced to improve their business methods and in some instances to withdraw the use of their names from lay "picture factories." By the regular publication of lists of accredited radiologists, physicians generally are encouraged to refer their work to qualified medical graduates.

The excellent cooperation given the Council by the national radiologic societies and the advisers in the various sections, who are themselves prominent radiologists, has made possible the development of the Council's present list. The maximum value and the continued wholesome effects of this published list are in direct proportion to the cooperation extended by the physicians in the specialty.

Doubtless there are radiologists who have not made application for the Council's listing and whose names have not been included for that reason.

ESSENTIALS FOR ADMISSION TO LIST OF PHYSICIANS SPECIALIZING IN RADIOLOGY

Prepared by the Council on Medical Education and Hospitals

PHYSICIANS ELIGIBLE

Consideration for admission to the list is open to all regular licensed physicians engaged in radiologic work in accordance with the essentials, whether connected with a hospital or conducting an independent laboratory.

1. QUALIFICATIONS

(*a*) The candidate shall be a graduate of a medical school that is approved by the Council on Medical Education and Hospitals and shall be licensed to practice medicine in the state in which his department is located. He shall also have had special training, such as is approved by the Council, in radiology, roentgenology or radium therapy at an acceptable school — preceptorship, hospital or clinic, department of radiology, roentgenology or radium therapy — for a period of at least three years. He must be a man of good standing in the medical profession, and particularly among those specializing in radiology. He shall either be on a full time basis or have definite hours of attendance at the department, such hours to be ample to insure the element of medical consultation in every examination or treatment.

(*b*) The department shall be under the direction of a physician radiologist, roentgenologist or radium therapist, as the circumstances may require. The director shall be responsible for all examinations and treatments. He shall be responsible for all professional assistants and for the efficient maintenance of the department.

Physicians employed by laboratories which are under lay control and direction will not be eligible for consideration for this listing.

(*c*) *Assistants.*—The director may have a corps of qualified medical and technical assistants responsible to him, and for whom he is responsible, to carry out accurately the various functions of the department.

2. DEFINITIONS

Radiology.—The branch of medicine which deals with the diagnostic and therapeutic application of radiant energy, including roentgen rays, radium, ultraviolet rays and other spectral radiation.

Department of Radiology.—A private laboratory or department of a hospital, clinic or other institution, organized and equipped for the diagnostic and therapeutic application of radiant energy, in the form of roentgen rays and radium. Ultraviolet and other spectral radiation may also be included.

Radiologist.—A qualified physician who also has obtained adequate training and experience in general radiology. Physical therapy is not obligatory under this classification.

Roentgenology.—The phase of radiology which deals with the diagnostic and therapeutic application of roentgen rays only.

Department of Roentgenology. — A private laboratory or department of a hospital, clinic or other institution organized and equipped for the diagnostic and therapeutic application of roentgen rays only. A department organized and equipped solely for the diagnostic or therapeutic application of roentgen rays shall be known as a department of diagnostic or therapeutic roentgenology, respectively.

Roentgenologist.—A qualified physician who has had adequate training and experience in the diagnostic and therapeutic application of roentgen rays.

Diagnostic Roentgenologist.—A roentgenologist who limits his practice to the diagnostic phase of roentgenology.

Therapeutic Roentgenologist.—A roentgenologist who limits his practice to the therapeutic phase of roentgenology.

Radium Specialist.—A physician who has had adequate training and experience in the therapeutic use of radium and who specializes in this work.

3. Scope

A department of radiology should be able to render all of the following services:

(*a*) Roentgenography, simple or stereoscopic, of any part of the body, with medical interpretation of the roentgenographic observations, and under satisfactory conditions for the protection of the patient and of the professional and technical personnel.

(*b*) Roentgenoscopy of any part of the body, in any position, with or without opaque mediums, with medical interpretation of the roentgenoscopic observations, and under satisfactory conditions for the protection of the patient and the professional and technical personnel.

(*c*) Roentgenotherapy of all benign and malignant diseases amenable to such treatment with roentgen rays generated at low, moderate or high voltage (long, medium or short wavelength), as the conditions may require, and under satisfactory conditions for the protection of the patient and of the professional and technical personnel.

(*d*) Radium therapy of all benign and malignant diseases amenable to such treatment with an adequate quantity of radium element or emanation, and under satisfactory conditions for the protection of the patient and of the professional and technical personnel.

Ultraviolet therapy, general or local, with satisfactory air-cooled and water-cooled quartz mercury lamps or carbon arc lamps, with suitable quartz and other applicators for irradiation of cavities, sinuses or the superficial lesions under pressure, and under satisfactory conditions for the protection of the patient and of the professional or technical personnel. The Council recommends that, wherever ultraviolet treatments are given, they should be under the control and supervision of a physician who has specialized in this form of radiant energy.

A department of roentgenology should be able to render the services specified under *a*, *b* and *c*.

A department of diagnostic roentgenology should be able to render the services specified under *a* and *b*.

A department of therapeutic roentgenology should be able to render the services specified under *c*.

A department of radium therapy should be able to render the services specified in *d*.

4. Housing

The housing should be adequate for the proper functioning of the department of radiology or roentgenology. Damp or ill ventilated quarters are unsuitable for such work.

5. Equipment

The equipment should be sufficient to carry out properly the technical procedures and activities of the department of radiology, roentgenology or radium therapy.

6. Protection

The arrangement of working rooms and conditions, and the construction of all apparatus shall be such as to provide adequate protection, both from electrical shock and from avoidable exposure to roentgen rays or radium, to patients, attendants and other persons in or near the department. The requirements in this respect are based on the recommendations adopted by the International Congress of Radiology, held at Stockholm, Sweden, in July 1928, and approved by the American Roentgen Ray Society and the Radiological Society of North America.

7. Records

Full records of all examinations and treatments, made by the department, suitably indexed, are essential. Roentgenograms made in the department should have inerasable identification marks which will preclude error as to patients concerned. Roentgenograms may be lent to referring physicians but should be returned to the laboratory for filing and future reference. Suitable storage facilities should be provided where roentgenograms and other records will be both safe and readily available for reference. They shall be kept as long as there is the possibility of their being needed for the benefit of the patients or their physicians.

As roentgenography constitutes only a kind of medical examination, on which the roentgenologist's opinion of the patient's condition is partly or wholly based, and as the opinion of the specialist is the essential factor, the Council holds that the introduction of roentgenograms as evidence in medicolegal cases should be discouraged as immaterial and as tending to adulterate the process of justice. There is no more reason for the introduction of roentgenograms than for requiring a pathologist to bring to court his microscope and his sections of tissues.

8. Reports

The reports of a department of radiology, roentgenology or radium therapy shall be made through the director on stationery or blanks having the name of the director printed thereon. Under no circumstances shall roentgenologic diagnoses, interpretations, opinions, statements of prognosis, or therapeutic suggestions be offered by the nonmedical personnel.

9. Library

The department of radiology, roentgenology or radium therapy should be provided with, or have convenient access to, a library including current scientific books and journals on all the various subjects required in its work.

10. Ethics, Fees and Publicity

Radiology is a special type of medical practice, and the physician practicing radiology is subject to the same rules of special training and conduct that govern his fellow specialists in the practice of medicine and surgery. The Principles of Medical Ethics of the American Medical Association shall apply in all cases. The fees charged for radiologic services shall be under the control of the director of the department. All systems of rebates, discounts, special group rates, etc., shall be considered unethical, except that, where the patient's economic status is the determining factor, the radiologist, like his fellow physician in medicine or surgery, may waive part or all of the fee.

The publicity of a department of radiology, roentgenology or radium therapy should be in professional good taste and limited to statements of fact as to name, address and telephone number; names and titles of the director and other active responsible personnel; field of work covered, office hours, directions for referring patients, and so forth. It should not contain misleading statements or claims of unusual superiority. It should not advocate medical fads nor lay undue stress on the importance of roentgenologic observations. On the letterheads or any other form of publicity, only the names of those rendering regular services to the department should appear as being connected with the department. Advertising matter should be directed only to physicians, either through bulletins or through recognized technical journals, and never to the nonprofessional public, as, for example, by announcements in popular journals and periodicals, circulars, pamphlets or telephone lists.

11. Admission to the Approved List

Only when the physician is the director or is affiliated with a department of radiology, roentgenology or radium therapy in which the personnel, space, equipment, management, finances and records are such as will insure honest, efficient and accurate work may he expect to be listed. Physicians desiring to be considered for the approved list should apply to the Council on Medical Education and Hospitals of the American Medical Association, 535 North Dearborn Street, Chicago.

PHYSICIANS SPECIALIZING IN RADIOLOGY—1,250

The list contains the names of only those who have applied for recognition and who have been found to comply with the "Essentials." The advisers for their respective states have passed favorably upon them. Those who are still under consideration, and others who may apply, will, when accepted, be added in subsequent issues of THE JOURNAL.

The type of service rendered is given opposite the name. "Radiology," under "Type of Service," always includes short wave therapy, also known as "deep therapy." The asterisk (*) on "roentgenology" indicates that short wave therapy is included.

For list of physicians specializing in radiology in government service, see page 618.

ALABAMA

NAME	ADDRESS	TYPE OF SERVICE
Anniston		
Levi, Irwin P.	931 Noble St.	Roentgenology
Birmingham		
Barfied-Carter, M.	2031, 1st Ave., N.	Roentgenology
Kesmodel, Karl F.	1023 S. 20th St.	Radiology
Meadows, James A.	1023 S. 20th St.	Radiology
Sorrell, Lewis E.	2501, 16th St.	Roentgenology *
Dothan		
Ellis, John T.	200 E. Main St.	Roentgenology
Fairfield		
Troje, Oscar R.	Tenn. Coal, Iron & R. R. Co. Employee's Hosp.	Radiology
Mobile		
Gravlee, I. M.	1252 Springhill Ave.	Radiology
Montgomery		
Boswell, F. P.	201 Montgomery St.	Radiology

ARIZONA

NAME	ADDRESS	TYPE OF SERVICE
Phoenix		
Goss, H. L.	125 W. Monroe St.	Roentgenology
Watkins, W. Warner	15 E. Monroe St.	Radiology
Tucson		
Hayden, Edward M.	Desert Sanatorium and Institute of Research	Diagnostic roent.

ARKANSAS

NAME	ADDRESS	TYPE OF SERVICE
Fort Smith		
Brooksher, W. R.	602 Garrison Ave.	Radiology
Hot Springs		
Nims, Chas. H.	236 Central Ave.	Radiology
Little Rock		
Rhinehart, Barton A.	701 Main St.	Roentgenology
Rhinehart, D. A.	701 Main St.	Roentgenology
Zell, A. M.	2000 Main St.	Radiology
Monticello		
Wilson, J. S.		Radiology

CALIFORNIA

NAME	ADDRESS	TYPE OF SERVICE
Alameda		
Lum, Wm. T.	1361 Park St.	Roentgenology *
Bakersfield		
Fox, L. H.	2025, 18th St.	Roentgenology
Berkeley		
Bissell, Frank S.	1581 Solano Ave.	Roentgenology
Heald, E. Schulze	3000 Regent St.	Roentgenology
Van Nuys, R. G.	2490 Channing Way	Radiology
Eureka		
Woolford, Joseph S.	350 E St.	Roentgenology
Fresno		
Milholland, W. G.	1015 Fulton St.	Roentgenology
Ruff, Frank R.	1234 S St.	Radiology
Glendale		
Ghrist, David M.	143 N. Brand St.	Radiology
Jones, L. L.	225 N. Central Ave.	Roentgenology *
Hollywood		
Sherman, Benj. H.	6777 Hollywood Blvd.	Roentgenology
Stewart, Chas. W.	1680 N. Vine St.	Roentgenology
Warren, J. W.	1322 N. Vermont Ave.	Radiology
Long Beach		
Heylmun, H. H.	115 Pine Ave.	Diagnostic roent.
Mayfield, Claude	115 Pine Ave.	Diagnostic roent.
Los Angeles		
Abowitz, Jacob	4833 Fountain Ave.	Roentgenology
Bailey, Cornelius O.	727 W. 7th St.	Radiology
Blaine, Edward S.	727 W. 7th St.	Roentgenology
Bonoff, Karl M.	1930 Wilshire Blvd.	Roentgenology
Carter, Ray A.	1100 Mission Rd.	Roentgenology
Costolow, Wm. E.	1407 S. Hope St.	Roentgen therapy Radium therapy
Davis, Kenneth S.	2131 W. 3d St.	Roentgenology *
Goin, Lowell S.	1930 Wilshire Blvd.	Roentgenology
Johnson, Clayton R.	1100 Mission Rd.	Diagnostic roent.
Karshner, Rolla G.	510 S. Lucas Ave.	Roentgenology
Kibby, Sydney V.	417 S. Hill St.	Roentgenology
Liljedahl, Elmer N.	1241 Shatto St.	Roentgenology *
MacColl, Douglass R.	523 W. 6th St.	Roentgenology *
Pindell, Merl Lee.	678 S. Ferris Ave.	Diagnostic roent.
Saure, Henry	1414 S. Hope St.	Radiology
Soiland, Albert	1407 S. Hope St.	Roentgen therapy Radium therapy
Stafford, Owen R.	520 W. 7th St.	Roentgenology
Taylor, Raymond G.	1212 Shatto St.	Radiology
Witter, Calvin B.	511 S. Bonnie Brae St.	Roentgenology *
Oakland		
Bowen, Carl B.	1624 Franklin St.	Roentgenology
Jelte, S. A.	230 Grand Ave.	Radiology
Manderville, Frederick B.	434, 30th St.	Roentgenology *
Petch, Philip H.	426, 17th St.	Roentgenology
Peters, Chas. E.	400, 29th St.	Roentgenology *
Sargent, Wm. H.	1624 Franklin St.	Roentgenology *
Siefert, Alfred C.	411, 30th St.	Radiology
Palo Alto		
Powers, Robert A.	261 Hamilton Ave.	Roentgenology
Pasadena		
Chapman, John Frye	65 N. Madison Ave.	Roentgenology *
Parker, Carl H.	65 N. Madison Ave.	Roentgenology *
Pomona		
Swearingen, F. C.	586 N. Main St.	Radiology
Redlands		
Folkins, F. H.	47 E. Vine St.	Roentgenology
Riverside		
Thuresson, Paul F.	3770, 12th St.	Diagnostic roent.
Sacramento		
Briggs, Rowland S.	1014, 8th St.	Radiology
Cook, Orrin S.	1127, 11th St.	Roentgenology
Graham, Ralph S.	2830 L St.	Roentgenology *
Lawson, John D.	928 Jay St.	Radiology
Zimmerman, Harold	1027, 10th St.	Radiology
San Bernardino		
Owen, C. C.	398, 6th St.	Roentgenology *
San Diego		
Elliott, A. E.	1831, 4th St.	Radiology
Kinney, L. C.	1831, 4th St.	Radiology
Weiskotten, W. O.	233 A St.	Diagnostic roent.
San Francisco		
Bryan, Lloyd	450 Sutter St.	Roentgenology *
Crow, Lloyd B.	1400 Fell St.	Roentgenology *
Donovan, Monica	450 Sutter St.	Roentgenology Radium therapy
Fulmer, Chas. C.	27th and Valencia Sts.	Roentgenology
Garland, L. Henry	450 Sutter St.	Roentgenology *
Hunsberger, H. S.	450 Sutter St.	Diagnostic roent.
Ingber, I. S.	490 Post St.	Radiology
Leef, Edward	2361 Clay St.	Radiology
Levitin, Joseph	516 Sutter St.	Radiology
Newell, Robert R.	2361 Clay St.	Radiology
O'Neill, John R.	2200 Hayes St.	Roentgenology
Rehfisch, John M.	450 Sutter St.	Roentgenology *
Rice Frank M.	2000 Van Ness Ave.	Roentgenology *
Rodenbaugh, F. H.	490 Post St.	Radiology
Ruggles, Howard E.	384 Post St.	Roentgenology
Starks, Dorothy J.	2361 Clay St.	Radiology
Stone, Robert S.	Parnassus and 3d Ave.	Roentgenology *
Williams, Francis	870 Market St.	Radiology
San Jose		
Broemser, Milton A.	311 S. 1st St.	Radiology
Bullitt, James B.	241 E. Santa Clara St.	Radiology
Richards, Charles M.	241 E. Santa Clara St.	Radiology
San Pedro		
Allen, Albert	410 W. 6th St.	Diagnostic roent.
Santa Barbara		
Clark, Daniel M.	1520 Chapala St.	Diagnostic roent.
Geyman, M. J.	1520 Chapala St.	Radiology
Ullmann, H. J.	1520 Chapala St.	Radiology
Ware, James G.	1513 State St.	Roentgenology *
Santa Monica		
Hopkirk, C. C.	710 Wilshire Blvd.	Diagnostic roent.
Stockton		
McGurk, Raymond T.	242 N. Sutter St.	Roentgenology *
Sheldon, F. B.	242 N. Sutter St.	Radiology

COLORADO

NAME	ADDRESS	TYPE OF SERVICE
Colorado Springs		
Brown, L. Gordon	707 N. Cascade Ave.	Radiology
Denver		
Allen, K. D. A.	227, 16th St.	Roentgenology *
Bouslog, John S.	227, 16th St.	Radiology
Brandenburg, H. P.	227, 16th St.	Radiology
Childs, S. B.	227, 16th St.	Radiology
Crosby, L. G.	227, 16th St.	Radiology
Diemer, Frederick E.	1616 Tremont Pl.	Diagnostic roent.
Newcomer, Elizabeth	1616 Tremont Pl.	Roentgenology *
Newcomer, N. B.	1616 Tremont Pl.	Radiology
Schmidt, Ernst A.	4200 E. 9th Ave.	Radiology

NAME	ADDRESS	TYPE OF SERVICE
Stephenson, F. B.	227, 16th St.	Roentgenology
Wasson, W. W.	227, 16th St.	Radiology
Withers, Sanford	1612 Tremont Pl.	Roentgenology Radium therapy
Longmont		
Matlack, J. A.		Diagnostic roent.
Sterling		
Daniel, J. H.		Roentgenology
Woodmen		
Forney, F. A.		Diagnostic roent.
CONNECTICUT		
Bridgeport		
Groark, Owen J.	881 Lafayette St.	Diagnostic roent.
Lockhart, R. Harold	144 Golden Hill St.	Radiology
Parmelee, B. M.	144 Golden Hill St.	Radiology
Hartford		
Butler, Nicholas G.	50 Farmington Ave.	Roentgenology
Climan, Max	242 Trumbull St.	Diagnostic roent.
Hoffman, Charles C.	700 Main St.	Diagnostic roent.
Ogden, Ralph T.	179 Allyn St.	Radiology
Roberts, Douglas J.	179 Allyn St.	Radiology
Van Strander, W. H.	179 Church St.	Radiology
Meriden		
Otis, Fessendon N.	165 W. Main St.	Roentgenology
Middletown		
Murphy, James	101 Broad St.	Radiology
New Britain		
Grant, Arthur S.	55 W. Main St.	Roentgenology
Loud, Norman W.	92 Grand St.	Diagnostic roent.
New Haven		
Bergman, A. P.	27 Elm St.	Diagnostic roent.
Goldman, George	201 Park St.	Diagnostic roent.
Scott, Clifton R.	215 Whitney Ave.	Roentgenology
Wheatley, Louis F.	420 Temple St.	Roentgenology *
Norwalk		
Perkins, Charles W.	520 West Ave.	Roentgenology *
Waterbury		
Atkins, Samuel M.	111 W. Main St.	Roentgenology *
Harvey, Joseph L.	64 Robbins St.	Roentgenology *
Willimantic		
Kinney, Kenneth K.	29 North St.	Roentgenology
DELAWARE		
Wilmington		
Allen, B. M.	909 Washington St.	Diagnostic roent.
Burns, Ira	601 Delaware Ave.	Radiology
McElfatrick, G. C.	1024 W. 8th St.	Diagnostic roent.
DISTRICT OF COLUMBIA		
Washington		
Bierman, M. I.	1801 Eye St., N.W.	Diagnostic roent.
Caylor, C. C.	1029 Vermont Ave., N.W.	Diagnostic roent.
Christie, A. C.	1835 Eye St., N.W.	Radiology
Coe, Fred O.	1835 Eye St., N.W.	Radiology
Elward, Joseph F.	1726 Eye St., N.W.	Roentgenology
Groover, T. A.	1835 Eye St., N.W.	Radiology
Lattman, Isidore	1835 Eye St., N.W.	Radiology
Leibell, Casimir	2d and D Sts., S.E.	Radiology
McPeak, Edgar M.	1835 Eye St., N.W.	Radiology
Merritt, E. A.	1835 Eye St., N.W.	Radiology
Moore, A. B.	1835 Eye St., N.W.	Radiology
Moore, Claude	815 Connecticut Ave.	Roentgenology
Otell, L. S.	1835 Eye St., N.W.	Radiology
Sappington, E. F.	1103, 16th St., N.W.	Roentgenology
FLORIDA		
Fort Lauderdale		
Hendricks, E. M.	314 Sweet Bldg.	Radiology
Fort Myers		
Williams, Jack K.	1429 Cottage St.	Radiology
Jacksonville		
Cunningham, Lester W.	117 W. Duval St.	Roentgenology *
McEuen, H. B.	126 W. Adams St.	Roentgenology *
Shaw, W. McL.	117 W. Duval St.	Roentgenology *
Miami		
Cleghorn, Charles D.	168 S.E. 1st St.	Roentgenology Radium therapy
Lucinian, Joseph H.	168 S.E. 1st St.	Roentgenology *
Pearson, Nelson T.	168 S.E. 1st St.	Roentgenology
Raap, Gerard	168 S.E. 1st St.	Diagnostic roent. Radium therapy
Miami Beach		
Payton, Frazier J.	St. Francis Hospital	Roentgenology Radium therapy
Ocala		
Moore, J. N.		Diagnostic roent.
Orlando		
Pines, John A.	108 E. Central Ave.	Roentgenology *
Weed, Walter A.	307 S. Orange Ave.	Radiology
St. Petersburg		
Feaster, O. O.	11th St. and 7th Ave., N.	Radiology
Herring, John A.	342, 3d Ave. N.	Diagnostic roent.
Sanford		
Marshall, C. J.	706 E. 2d St.	Radiology
Tampa		
Allen, Bundy	706 Franklin St.	Roentgenology *
Brown, Harold O.	215 Madison St.	Roentgenology
Dickinson, J. C.	706 Franklin St.	Roentgenology *
West Palm Beach		
Herpel, Fredk. K.	Good Samaritan Hospital	Diagnostic roent.
GEORGIA		
Americus		
Pendergrass, R. C.		Roentgenology *
Atlanta		
Clark, James J.	478 Peachtree St., N. E.	Roentgenology *
Hall, O. D.	450 East Ave.	Radium therapy
Lake, Wm. F.	384 Peachtree St., N. E.	Roentgenology *
Landham, J. W.	139 Forrest Ave., N. E.	Roentgenology Radium therapy
Rayle, Albert A.	36 N. Butler St.	Roentgenology
Stewart, Calvin B.	904 Peachtree St.	Radium therapy
Augusta		
Holmes, L. P.	753 Broad St.	Roentgenology
Savannah		
Cole, Wm. A.	24 E. Taylor St.	Roentgenology
Corson, Eugene R.	10 W. Jones St.	Roentgenology *
Drane, Robert	Liberty and Drayton Sts.	Roentgenology Radium therapy
McGee, H. H.	14 E. Taylor St.	Roentgenology
Thomasville		
Collins, J. J.		Radiology
IDAHO		
Boise		
Genoway, Charles V.	105 N. 8th St.	Roentgenology *
Lewiston		
Johnson, Paul W.		Roentgenology *
ILLINOIS		
Batavia		
Mostrom, H. T.		Diagnostic roent. Radium therapy
Belvidere		
Alguire, Alden		Diagnostic roent.
Bloomington		
Cantrell, Thomas D.	310 E. Jefferson St.	Radiology
Grote, Henry W.	219 N. Main St.	Radiology
Chicago		
Anspach, Wm. E.	5742 Drexel Ave.	Radiology
Arens, Robt. A.	2839 Ellis Ave.	Radiology
Beilin, David S.	411 Garfield Ave.	Radiology
Blackmarr, Frank H.	25 E. Washington St.	Roentgen therapy Radium therapy
Brams, Julius	55 E. Washington St.	Radiology
Brown, Wm. L.	55 E. Washington St.	Radium therapy
Capp, Charles S.	6128 Ingleside Ave.	Radiology
Case, James T.	180 N. Michigan Ave.	Radiology
Challenger, Chester J.	3117 Logan Blvd.	Roentgenology
Cook, Carroll E.	30 N. Michigan Ave.	Radiology
Crowder, Earl R.	2700 W. 69th St.	Roentgenology *
Culpepper, Wm. L.	1180 E. 63d St.	Roentgenology
Cushway, B. C.	7752 S. Halsted St.	Radiology
Cutrera, Peter	501 N. Halsted St.	Diagnostic roent.
Damiani, Joseph	767 Milwaukee Ave.	Roentgenology
Davis, H. E.	2548 Lake View Ave.	Radiology
Dick, Paul G.	55 E. Washington St.	Roentgenology
Foley, Joseph M.	1439 S. Michigan Ave.	Roentgenology *
Ford, Charles	8017 Luella Ave.	Roentgenology
Ford, Frances A.	1606 Maypole Ave.	Radium therapy
Gilmore, Wilbur H.	185 N. Wabash Ave.	Roentgenology
Grubbe, Emil H.	6 N. Michigan Ave.	Roentgen therapy
Hartung, Adolph	25 E. Washington St.	Radiology
Herman, Edward R.	6319 S. Halsted St.	Roentgenology *
Hodges, Paul C.	950 E. 59th St.	Radiology
Hubeny, M. J.	25 E. Washington St.	Roentgenology
Jenkinson, David L.	1931 Wilson Ave.	Roentgenology *
Jenkinson, E. L.	1439 S. Michigan Ave.	Radiology
Kaplan, Maurice I.	3837 W. Roosevelt Rd.	Radiology
Kitterman, Peter G.	6319 S. Halsted St.	Roentgenology
Landau, George M.	660 Groveland Park	Roentgenology
Larkin, A. James	180 N. Michigan Ave.	Radium therapy
Ledoux, Alfred C.	950 E. 59th St.	Roentgenology *
Litschgi, Joseph J.	551 Grant Pl.	Roentgenology
Maier, Roe J.	7752 S. Halsted St.	Radiology
McClure, C. F.	25 E. Washington St.	Roentgenology
Olin, Harry A.	6058 Drexel Blvd.	Roentgenology
Orndoff, B. H.	2561 N. Clark St.	Radiology
Potter, Hollis E.	122 S. Michigan Ave.	Roentgenology
Richman, Samuel H.	6205 Ingleside Ave.	Roentgenology *
Rose, Cassie Belle	1753 W. Congress St.	Radiology
Royer, Don J.	841 E. 63d St.	Roentgenology
Simpson, Frank E.	59 E. Madison St.	Radium therapy
Tichy, L. S.	3200 W. Cermak Rd.	Roentgenology
Trostler, I. S.	25 E. Washington St.	Radiology
Wanninger, W. J.	9116 Exchange Ave.	Roentgenology
Warden, R. H.	1044 N. Francisco Ave.	Radiology
Warfield, C. H.	Wood and Harrison Sts.	Roentgenology
Willy, R. G.	2749 W. Foster Ave.	Roentgenology
Danville		
Allison, Otis W.	41 N. Vermilion St.	Radium therapy
Archibald, James S.	602 Green St.	Roentgenology
Dunham, L. H.	41 N. Vermilion St.	Radiology
Decatur		
Flinn, Fauntleroy	220 S. Webster St.	Radiology
Deerfield		
Davis, Charles J.		Roentgenology
East St. Louis		
Echternacht, A. C.	129 N. 8th St.	Radiology

NAME	ADDRESS	TYPE OF SERVICE
Evanston		
Conley, Bernard M...	355 Ridge Ave.....	Roentgenology
Perry, Gentz.....	636 Church St.....	Radiology
Galesburg		
Gunning, R. E. Lee..	64 S. Prairie St.....	Radiology
Highland Park		
Jacks, R. R.....	2 N. Sheridan Rd.....	Diagnostic roent.
Jacksonville		
Brouse, Ivan E.....	316 W. State St.....	Roentgenology *
Joliet		
Houston, Alfred M...	201 N. Chicago St.....	Roentgenology
Lincoln		
Hagans, Frank M.....	400 Broadway.....	Radium therapy
Mattoon		
Morgan, Chas. E.....	213 S. 17th St.....	Roentgenology
Mount Carmel		
Elkins, Harold A.....	.....	Roentgenology
Mount Vernon		
Smith, Elmer M.....	1001½ Broadway.....	Roentgenology
Oak Park		
Ronayne, Frank J....	518 N. Austin Blvd.....	Radiology
Wait, Harold Nathan.	1209 N. Linden Ave.....	Roentgenology
Olney		
Weber, James A.....	.....	Diagnostic roent. Radium therapy
Ottawa		
Pettit, Roswell T.....	728 Columbus St.....	Radiology
Peoria		
Goodwin, P. B.....	530 N. Glen Oak Ave.....	Radiology
Magee, H. B.....	408 Main St.....	Radiology
Quincy		
Beirne, H. P.....	648 Hampshire St.....	Roentgenology Radium therapy
Perley, Arthur E.....	508 Maine St.....	Radiology
Swanberg, Harold....	508 Maine St.....	Radiology
Rockford		
Ackemann, H. W.....	321 W. State St.....	Radiology
Springfield		
Hilt, Lawrence M.....	105 S. 5th St.....	Roentgenology *
O'Hara, F. S.....	403 E. Capitol Ave.....	Radiology

INDIANA

Evansville		
Cleveland, W. R.....	22 N. W. 4th St.....	Radiology
Meyer, Keith T.....	600 Mary St.....	Diagnostic roent.
Fort Wayne		
Rodriguez, Juan.....	2902 Fairfield Ave.....	Radiology
Truelove, A. O.....	123 E. Wallace St.....	Radiology
Van Buskirk, E. M...	347 W. Berry St.....	Radiology
Frankfort		
Chittick, A. G.....	206 E. Walnut St.....	Roentgenology
Gary		
Dietrich, Paul H.....	2006 W. 4th Pl.....	Roentgenology
Hammond		
Rauschenbach, C. W.	5245 Hohman Ave.....	Roentgenology
Indianapolis		
Beeler, Raymond C...	23 E. Ohio St.....	Radiology
Collins, James N.....	23 E. Ohio St.....	Radiology
Lochry, R. L.....	Fall Creek Blvd. and Illinois St.....	Roentgenology
Smith, Lester A.....	23 E. Ohio St.....	Radiology
Stayton, Chester A...	23 E. Ohio St.....	Roentgenology *
Wright, Cecil S.....	1076 W. Michigan St.....	Radiology
Kokomo		
Ferry, Paul W.....	224 N. Main St.....	Diagnostic roent.
LaFayette		
McClelland, D. C.....	308 N. 8th St.....	Roentgenology *
Sichler, Harper G....	2400 South St.....	Roentgenology
Michigan City		
Martin, F. V.....	501 Pine St.....	Radiology
Muncie		
Moore, P. D.....	Jackson and High Sts.....	Radiology
New Castle		
Iterman, Geo. E.....	1319 Church St.....	Roentgenology
Plymouth		
Knott, Harry.....	.....	Roentgenology
Shelbyville		
Inlow, Herbert H....	18 W. Washington St.....	Diagnostic roent.
South Bend		
Fisher, Lawrence F...	105 E. Jefferson Blvd.....	Roentgenology *
Terre Haute		
Pierce, H. J.....	627 Cherry St.....	Radiology
Union City		
Reid, Robert W.....	.....	Roentgenology
Valparaiso		
DeWitt, C. H.....	.....	Diagnostic roent.
Vincennes		
Moore, Robert G.....	21 N. 3d St.....	Roentgenology

IOWA

Anamosa		
Rawson, E. G.....	.....	Diagnostic roent.
Atlantic		
Greenleaf, W. S.....	.....	Roentgenology
Belle Plaine		
Newland, Don H.....	.....	Diagnostic roent.
Boone		
Whitaker, B. T.....	703, 8th St.....	Radiology
Cedar Rapids		
Erskine, Arthur W....	120, 3d Ave., S.E.....	Radiology
Gillies, Carl L.....	120, 3d Ave., S.E.....	Radiology
Clinton		
Knudsen, Hubert K...	419 S. 2d St.....	Roentgenology *
Council Bluffs		
Hawkins, Emmet L....	420 W. Washington Ave...	Radiology
Des Moines		
Burcham, Thos. A....	410, 6th Ave.	Radiology
Eagle Grove		
Christensen, John R..	.....	Roentgenology
Iowa City		
Gibbon, W. H.....	University Hospital.....	Radiology
Kerr, H. Dabney.....	University Hospital.....	Radiology
Rypins, Edwin L.....	University Hospital.....	Radiology
LeMars		
Larsen, W. W.....	.....	Roentgenology *
Marshalltown		
Talley, Louis F.....	Main St. and 3d Ave.....	Roentgenology
Ottumwa		
Spilman, H. A.....	103 S. Market St.....	Diagnostic roent.
Webb, Harold H.....	119 E. Main St.....	Roentgenology *
Waterloo		
Britt, Otis W.....	525 Sycamore St.....	Radiology

KANSAS

Beloit		
Vallette, H. B.....	.....	Diagnostic roent.
Eldorado		
Dinsmore, W. S.....	324 W. Central Ave.....	Diagnostic roent.
Fort Scott		
Prichard, J. R.....	209 S. Main St.....	Radiology
Kansas City		
Allen, Lewis G.....	601 Minnesota Ave.....	Radiology
Tice, Galen M.....	4158 Eaton St.....	Radiology
Lawrence		
Jones, H. T.....	107 E. 8th St.....	Diagnostic roent.
Salina		
Brittain, O. R.....	105 S. 7th St.....	Roentgenology
Topeka		
Finney, Guy A.....	901 Kansas Ave.....	Roentgenology
Floersch, M. A.....	700 Kansas Ave.....	Roentgenology
Owen, Arthur K.....	901 Kansas Ave.....	Roentgenology
Wichita		
Frost, E. J.....	227 E. Douglas Ave.....	Radiology
Swope, Opie W.....	105 N. Main St.....	Radiology
Webb, J. A. H.....	106 N. Main St.....	Radiology

KENTUCKY

Ashland		
Cooper, John Ralph...	1540 Winchester Ave.....	Roentgenology *
Lexington		
Harding, Donnan B..	190 N. Upper St.....	Radiology
Lewis, John C.....	159 W. Main St.....	Roentgenology
Thompson, J. Campbell	207 N. Upper St.....	Roentgenology
Louisville		
Bell, J. C.....	332 W. Broadway.....	Radiology
Enfield, Chas. D.....	332 W. Broadway.....	Radiology
Fugate, I. T.....	608 S. 4th St.....	Radiology
Herrmann, Henry C...	608 S. 4th St.....	Radiology
Johnson, Sydney E...	101 W. Chestnut St.....	Roentgenology
Keith, D. Y.....	412 W. Chestnut St.....	Radiology
Keith, J. P.....	412 W. Chestnut St.....	Radiology
Martin, William C....	321 W. Broadway.....	Roentgenology
Owensboro		
Gillim, P. D.....	415 St. Ann St.....	Roentgenology
Shelbyville		
Bayless, B. W.....	.....	Roentgenology
Winchester		
Browne, I. H.....	R. D. 5.....	Diagnostic roent.

LOUISIANA

Alexandria		
Barker, H. O.....	327, 3d St.....	Roentgenology
Baton Rouge		
Williams, Lester J...	221, 3d St.....	Radiology
Houma		
St. Martin, T. I.....	.....	Roentgenology
Mansfield		
Curtis, H. P. D.....	.....	Roentgenology
Monroe		
Moore, Daniel M.....	128 De Siard St.....	Roentgenology
New Orleans		
Ané, J. Norell.....	921 Canal St.	Roentgenology Radium therapy
Bowie, E. R.....	3503 Prytania St.....	Radiology
Fortier, L. A.....	2000 Tulane Ave.....	Radiology
Gately, T. T.....	2000 Tulane Ave.....	Radiology
Granger, Amédée.....	210 Baronne St.....	Roentgenology
Menville, L. J.....	921 Canal St.....	Radiology
Rodick, John C.....	3500 Prytania St.....	Roentgenology *
Samuel, E. C.....	3503 Prytania St.....	Radiology

NAME	ADDRESS	TYPE OF SERVICE
Shreveport		
Anderson, Johnson R.	1130 Louisiana Ave.	Roentgenology *
Barrow, S. C.	624 Travis St.	Radiology
Edwards, H. G. F.	624 Travis St.	Radiology
Harwell, W. R.	624 Travis St.	Radiology
Rutledge, C. P.	1030 Highland Ave.	Radiology
Thomas, A. Jerome	624 Travis St.	Roentgenology
MAINE		
Auburn		
Cunningham, C. H.	66 Goff St.	Diagnostic roent.
Bangor		
Ames, Forrest B.	489 State St.	Roentgenology
Hunt, Barbara	224 State St.	Radiology
Portland		
Cummings, Edson S.	12 Pine St.	Diagnostic roent.
Lamb, Frank W.	131 State St.	Diagnostic roent.
Thaxter, Langdon T.	22 Arsenal St.	Roentgenology
Waterville		
Goodrich, John P.	214 Main St.	Diagnostic roent.
MARYLAND		
Baltimore		
Ashbury, Howard E.	101 Read St.	Roentgenology *
Burnam, Curtis F.	1418 Eutaw Pl.	Radiology
Evans, John	101 Read St.	Roentgenology
Feldman, Maurice	2425 Eutaw Pl.	Diagnostic roent.
Hill, Eben C.	Johns Hopkins Med. Sch.	Roentgenology
Kahn, Max	2 W. Read St.	Roentgenology *
Ostro, Marcus	1810 Eutaw Pl.	Roentgenology
Pierson, J. W.	1107 St. Paul St.	Roentgenology *
Sax, Benjamin J.	2237 Eutaw Pl.	Diagnostic roent.
Walton, Henry J.	104 W. Madison St.	Roentgenology
Waters, Charles A.	1100 N. Charles St.	Roentgenology
Wright, Harold E.	101 Read St.	Diagnostic roent.
Crisfield		
Collins, C. E.		Roentgenology
Cumberland		
Cowherd, F. G.	122 S. Centre St.	Roentgenology
Easton		
Hammond, William T.		Roentgenology
Salisbury		
Kapo, Peter J.	Locust and S. Division Sts.	Radiology
Frederick		
Derr, John S.	35 E. Church St.	Roentgenology *
Hagerstown		
Hoffmeier, F. N.	King and Antietam Sts.	Roentgenology
MASSACHUSETTS		
Boston		
Blackett, Chas. W.	35 Bay State Rd.	Roentgenology
Butler, P. F.	35 Bay State Rd.	Radiology
Coffin, W. K.	438 Marlboro St.	Roentgenology
Ellsworth, S. W.	520 Beacon St.	Roentgenology
Friedman, Harry F.	270 Commonwealth Ave.	Radiology
George, Arial W.	43 Bay State Rd.	Roentgenology
Hampton, A. O.	Massachusetts General Hosp.	Radiology
Healy, Thomas R.	370 Marlboro St.	Roentgenology *
Holmes, Geo. W.	265 Charles St.	Radiology
Leonard, Ralph D.	43 Bay State Rd.	Roentgenology
Liebman, Charles	311 Commonwealth Ave.	Roentgenology
MacMillan, A. S.	483 Beacon St.	Roentgenology
McCarthy, H. L.	479 Beacon St.	Roentgenology
McFee, William D.	41 Bay State Rd.	Roentgenology
Meachen, John W.	475 Commonwealth Ave.	Roentgenology *
Moloney, Aibert M.	47 Bay State Rd.	Radiology
O'Brien, Fredk. W.	465 Beacon St.	Radiology
Osgood, Herman A.	144 Commonwealth Ave.	Roentgenology *
Ott, George J.	344 Commonwealth Ave.	Roentgenology
Perkins, Roy S.	520 Commonwealth Ave.	Roentgenology
Ritvo, Max	485 Commonwealth Ave.	Radiology
Robins, Samuel A.	636 Beacon St.	Roentgenology
Sosman, M. C.	721 Huntington Ave.	Roentgenology *
Vance, R. G.	264 Beacon St.	Roentgenology
Vogt, E. C.	300 Longwood Ave.	Roentgenology
Watts, Henry F. R.	6 Monadnock St., Dor.	Diagnostic roent.
Wheatley, Frank E.	520 Beacon St.	Roentgenology
Whelan, Charles	395 Commonwealth Ave.	Radiology
Brockton		
Packard, Loring B.	305 Prospect St.	Roentgenology
Brookline		
Bogan, Isabel K.	193 Aspinwall Ave.	Roentgenology
Dalton		
Sullivan, P. J.		Roentgenology
Fall River		
Tennis, M. N.	538 Prospect St.	Radiology
Fitchburg		
Jennings, Curtis H.	82 Mechanic St.	Roentgenology
Haverhill		
Popoff, Constantine	26 Summer St.	Roentgenology *
Sproull, John	50 Merrimack St.	Radiology
Holyoke		
Harrington, Elmer J.	199 Chestnut St.	Roentgenology *
Lawrence		
Burgess, Charles J.	37 Whitman St.	Radiology
Leary, Alfred J.	477 Essex St.	Roentgenology Radium therapy
Lowell		
Stewart, Ralph C.	226 Central St.	Roentgenology
Malden		
Warren, Alva H.	82 Beltran St.	Roentgenology
New Bedford		
Bonnar, James M.	90 Hillman St.	Roentgenology
North Adams		
Bunce, James W.	85 Main St.	Roentgenology
Crawford, J. W.	191 E. Main St.	Radiology
Northampton		
Janes, Benjamin F.	211 Elm St.	Roentgenology
Pittsfield		
Cox, Michael J.	74 North St.	Roentgenology *
Quincy		
Altman, Wm. S.	26 Adams St.	Radiology
Somerville		
Blake, Allen H.	81 College Ave., W. Som.	Roentgenology
Springfield		
Davis, Ernest L.	20 Maple St.	Roentgenology
Horrigan, A. J.	20 Maple St.	Roentgenology
Jackson, Howard L.	146 Chestnut St.	Roentgenology
Powers, Richard T.	25 Maple St.	Radiology
Van Allen, Harvey W.	19 Maple St.	Radiology
Webster		
Bragg, Leslie R.	260 Main St.	Diagnostic roent.
Worcester		
Cook, Philip H.	27 Elm St.	Roentgenology Radium therapy
Langill, Morton H.	36 Pleasant St.	Roentgenology
MICHIGAN		
Adrian		
Chase, A. W.	130 Toledo St.	Diagnostic roent.
Ann Arbor		
Donaldson, Samuel W.	326 N. Ingalls St.	Roentgenology
Hodges, Fred J.	University of Michigan	Roentgenology
Jacox, Harold W.	1116 Lincoln Ave.	Radiology
Peirce, Carleton B.	1313 E. Ann St.	Radiology
Battle Creek		
Gorsline, C. S.	29 W. Michigan Ave.	Roentgenology
Kolvoord, Theodore	25 W. Michigan Ave.	Roentgenology
Upson, W. O.	North Ave. and Emmett St.	Roentgenology
Detroit		
Berris, J. M.	10 Peterboro St.	Diagnostic roent.
Birkelo, Carl C.	28 W. Adams Ave.	Roentgenology
Bloom, Arthur R.	5057 Woodward Ave.	Roentgenology
Chene, George C.	1551 Woodward Ave.	Roentgenology
Dempster, Jas. H.	5761 Stanton Ave.	Diagnostic roent.
Dickson, B. R.	337 W. Grand Blvd.	Roentgen Therapy Radium Therapy
Doub, Howard P.	2799 W. Grand Blvd.	Radiology
Eakins, F. J.	1551 Woodward Ave.	Roentgenology
Eisen, Paul	258 S. Algonquin St.	Roentgen therapy Radium therapy
Evans, Wm. A.	10 Peterboro St.	Radiology
Grace, Joseph M.	14729 St. Marys St.	Radiology
Hall, E. Walter	10 Peterboro St.	Radiology
Hasley, Clyde K.	1551 Woodward Ave.	Radiology
Jarre, Hans A.	1551 Woodward Ave.	Radiology
Kenning, J. C.	1551 Woodward Ave.	Roentgenology
Leucutia, Traian	10 Peterboro St.	Radiology
Minor, Edward G.	3001 W. Grand Blvd.	Roentgenology
Reynolds, Lawrence	10 Peterboro St.	Radiology
Sanderson, S. E.	5057 Woodward Ave.	Radiology
Shore, O. J.	3001 W. Grand Blvd.	Roentgenology
Stevens, Rollin H.	1551 Woodward Ave.	Radiology
Ulbrich, Henry L.	1122 E. Grand Blvd.	Roentgenology *
Weaver, Clarence E.	113 Martin Pl.	Roentgenology
Wilcox, Leslie F.	10 Peterboro St.	Radiology
Witwer, E. R.	3839 Brush St.	Radiology
Flint		
Clift, Myron W.	901 Begole St.	Radiology
Macduff, R. Bruce	112 W. Kearsley St.	Roentgenology *
Grand Rapids		
Menees, Thomas O.	Wealthy St. and Plymouth Rd.	Radiology
Moore, Vernor M.	110 E. Fulton St.	Radiology
Muller, John H.	26 Sheldon Ave.	Radiology
Williams, Alden H.	26 Sheldon Ave.	Radiology
Jackson		
Cooley, R. M.	524 Lansing Ave.	Roentgenology
Kugler, J. C.	1905 Grovedale Ave.	Roentgenology
Porter, H. W.	1020 E. Michigan Ave.	Radiology
Kalamazoo		
Crane, A. W.	420 S. Rose St.	Roentgenology *
Jackson, John B.	420 S. Rose St.	Roentgenology *
Lansing		
Davenport, Carroll S.	1210 W. Saginaw St.	Roentgenology *
Huntley, Fred M.	908 N. Capitol Ave.	Roentgenology
Monroe		
Moll, T. M.	120 Maple Blvd.	Diagnostic roent.
Muskegon		
Holly, Leland E.	876 N. 2d St.	Radiology
Pontiac		
Church, J. E.	35 W. Huron St.	Roentgenology
Pool, H. H.	35 W. Huron St.	Roentgenology
Saginaw		
Anderson, Wm. K.	316 S. Porter St.	Diagnostic roent.
St. Johns		
Ho, T. Y.		Diagnostic roent.
Traverse City		
Minor, E. B.	208½ E. Front St.	Diagnostic roent.
Ypsilanti		
Pillsbury, Chas. B.	23B N. Washington St.	Diagnostic roent.

MINNESOTA

NAME	ADDRESS	TYPE OF SERVICE
Duluth		
Clement, Gage	901 E. 1st St.	Radiology
McNutt, John R.	324 W. Superior St.	Roentgenology
Mankato		
Wentworth, A. J.	Main and Broad Sts.	Radiology
Minneapolis		
Allison, R. G.	74 S. 9th St.	Roentgenology *
Fleming, A. S.	900 Nicollet Ave.	Radium therapy
Hansen, Cyrus Owen.	412 Delaware St., S.E.	Radiology
Harrington, Chas. D.	78 S. 9th St.	Radiology
Nordin, G. T.	74 S. 9th St.	Roentgenology *
Rigler, Leo G.	412 Delaware St., S.E.	Diagnostic roent.
Sagel, Jacob.	412 Delaware St., S.E.	Radiology
Sundt, Mathias	87 S. 7th St.	Roentgenology
Ude, Walter H.	74 S. 9th St.	Roentgenology *
Rochester		
Bowing, Harry H.	102, 2d Ave., S.W.	Roentgenology Radium therapy
Camp, John D.	Mayo Clinic	Diagnostic roent.
Desjardins, A. U.	Mayo Clinic	Roentgen therapy Radium therapy
Fricke, Robert E.	Mayo Clinic	Radium therapy
Kirklin, B. R.	Mayo Clinic	Diagnostic roent.
Leddy, Eugene T.	Mayo Clinic	Radium therapy
Sutherland, Charles G.	Mayo Clinic	Diagnostic roent.
Weber, Harry M.	Mayo Clinic	Diagnostic roent.
St. Cloud		
Kern, M. J.	St. Cloud Clinic Bldg.	Roentgenology *
St. Paul		
Aurelius, J. R.	350 St. Peter St.	Roentgenology *
Schons, Edward	25 W. 4th St.	Radiology

MISSISSIPPI

Greenville		
Beals, John A.	301 Washington St.	Diagnostic roent.
Gulfport		
Van Ness, Edwin B.	1005, 32d Ave.	Roentgenology
Houston		
Williams, J. Rice		Roentgenology *
Jackson		
Henderson, W. F.	739 N. State St.	Radiology
Laurel		
McCormick, H. G.	531, 7th St.	Roentgenology
McComb		
Ratcliff, Marion D.	Maryland and 4th Sts.	Diagnostic roent.
Natchez		
Beekman, Marcus	307 Franklin St.	Diagnostic roent.

MISSOURI

Columbia		
Smith, Wm. L.	22 N. 8th St.	Radiology
Holden		
Thompson, Wm. G.		Radiology
Joplin		
McGaughey, H. D.	607 Main St.	Radiology
Kansas City		
Dann, David S.	306 E. 12th St.	Roentgenology
Deweese, E. R.	904 Grand Ave.	Roentgenology
Donaldson, Clyde O.	1103 Grand Ave.	Radiology
Lockwood, Ira H.	304 E. 12th St.	Radiology
McCandless, O. H.	308 E. 12th St.	Roentgenology
McDermott, J. L.	1103 Grand Ave.	Radiology
Skinner, Edward H.	1103 Grand Ave.	Radiology
Virden, C. E.	1103 Grand Ave.	Radiology
St. Joseph		
McGlothlan, A. B.	824 Edmond St.	Roentgenology *
Ravold, Henry J.	401 N. 6th St.	Radiology
St. Louis		
Ernst, Edwin C.	3720 Washington Ave.	Radiology
McCutchen, L. G.	3320 N. Kingshighway	Roentgenology *
Moore, Sherwood	600 S. Kingshighway	Radiology
Mueller, Wilbur K.	607 N. Grand Blvd.	Roentgenology
Peden, Joseph C.	634 N. Grand Blvd.	Roentgenology *
Sante, L. R.	634 N. Grand Blvd.	Radiology
Spinzig, Edgar W.	508 N. Grand Blvd.	Roentgenology
Titterington, P. F.	508 N. Grand Blvd.	Roentgenology
Zink, Oscar C.	5535 Delmar Blvd.	Roentgenology
Springfield		
Cole, Paul F.	200 Pershing Ave.	Radiology

MONTANA

Billings		
Bridenbaugh, J. H.	208 N. Broadway	Radiology
Watkins, C. F.	115 N. 28th St.	Radiology
Great Falls		
Walker, Dora	503, 1st Ave. N.	Roentgenology

NEBRASKA

Beatrice		
Penner, H. G.	113 S. 5th St.	Roentgenology *
Rush, Weaver A.	607 W. Court St.	Radiology
Grand Island		
Woodruff, R. C.	306½ N. Locust St.	Roentgenology
Hastings		
Rork, Lee W.	131 N. Hastings Ave.	Roentgenology *
Lincoln		
Kail, Carl	1307 N St.	Roentgenology *
Rowe, Edward W.	128 N. 13th St.	Radiology
Smith, Roscoe L.	1307 N St.	Radiology
Omaha		
Fouts, Roy W.	107 S. 17th St.	Radiology
Hardy, Clyde C.	101 S. 17th St.	Roentgenology
Harris, T. T.	407 S. 16th St.	Roentgenology
Hunt, Howard B.	36th and Cuming Sts.	Radiology
Kelly, J. F.	107 S. 17th St.	Radiology
McAvin, James S.	42d and Dewey Ave.	Radiology
Overgaard, A. P.	107 S. 17th St.	Roentgenology *
Ross, W. L.	407 S. 16th St.	Roentgenology
Tyler, Albert F.	103 S. 17th St.	Radiology
Scottsbluff		
Plehn, Frank W.	1818 Broadway	Roentgenology

NEVADA

Reno		
Piersall, C. E.	120 N. Virginia St.	Radiology

NEW HAMPSHIRE

Concord		
Eveleth, Fred S.	12 Court St.	Roentgenology
Dover		
Chesley, Harry O.	507 Central Ave.	Roentgenology
Hanover		
Sycamore, Leslie K.	2 Maynard St.	Radiology
Manchester		
Merrill, A. S.	814 Elm St.	Roentgenology
Nashua		
Davis, S. G.	168 Main St.	Roentgenology
Rock, T. F.	77 Main St.	Diagnostic roent.

NEW JERSEY

Asbury Park		
Herrman, William G.	501 Grand Ave.	Radiology
Atlantic City		
Bradley, Robert A.	1616 Pacific Ave.	Radiology
Kaighn, Charles B.	905 Pacific Ave.	Roentgenology
Bayonne		
Larkey, C. J.	700 Avenue C.	Diagnostic roent.
Beachwood		
Swan, Guy Howard		Roentgenology *
Camden		
Roberts, Joseph E.	403 Cooper St.	Roentgenology
East Orange		
Marquis, W. James	S. Munn and Central Aves.	Roentgenology
Reitter, George S.	144 Harrison St.	Radiology
Elizabeth		
Vogel, Herbert A.	1060 E. Jersey St.	Diagnostic roent.
Ward, Leo J.	137 W. Jersey St.	Radiology
Englewood		
Edwards, J. Bennett	350 Engle St.	Roentgenology *
Flemington		
Tompkins, G. B.		Diagnostic roent.
Hoboken		
Broeser, Henry V.	105 Newark St.	Roentgenology
Jersey City		
Maver, William W.	532 Bergen Ave.	Roentgenology *
Perlberg, Harry J.	921 Bergen Ave.	Roentgenology
Montclair		
Schimmelpfennig, R. D.	56 Church St.	Roentgenology
Stevens, J. Thompson.	53 Park St.	Radium therapy Roentgen therapy
Newark		
Baker, Charles F.	198 Clinton Ave.	Roentgenology *
Devlin, Frank	617 Broadway	Radiology
Furst, Nathan James.	190 Johnson Ave.	Roentgenology *
Gelber, Louis J.	41 Lincoln Ave.	Roentgenology
Hood, Philip G.	19 Lincoln Park	Diagnostic roent.
May, Ernst A.	965 Broad St.	Radiology
Pomeranz, Raphael	31 Lincoln Park	Roentgenology *
Reissman, Erwin	31 Lincoln Park	Radiology
Wyatt, Joseph H.	135 Clinton Ave.	Radiology
New Brunswick		
Avery, Philip S.	Albany and Somerset Sts.	Radiology
Klein, Wm.	85 Bayard St.	Radiology
Passaic		
Terhune, Percy H.	171 Paulison Ave.	Diagnostic roent.
Paterson		
Golding, Harry N.	180 Carroll St.	Roentgenology
Roemer, Jacob	213 Broadway	Radiology
Perth Amboy		
Klein, Edward F.	136 Market St.	Radiology
Rochelle Park		
Pallen, C. de S.		Radium therapy
Skillman		
Pigott, Albert W.	New Jersey State Village for Epileptics	Diagnostic roent.
Succasunna		
Plume, C. A.		Diagnostic roent.
Summit		
Disbrow, G. Ward	126 Mountain Ave.	Roentgenology
Tidaback, John D.	382 Springfield Ave.	Roentgenology
Trenton		
Davison, R. Winthrop	205 W. State St.	Radiology
Union City		
Goldstone, Karl H.	90 Palisade Ave.	Radiology

NEW MEXICO

NAME	ADDRESS	TYPE OF SERVICE
Albuquerque		
Johns, E. W.	221 W. Central Ave.	Roentgenology
Van Atta, J. R.	221 W. Central Ave.	Radiology
Warden, M. R.	St. Joseph Hospital	Diagnostic roent.

NEW YORK

NAME	ADDRESS	TYPE OF SERVICE
Albany		
Cross, Warren G.	New Scotland Ave.	Roentgenology
Howard, W. P.	46 Willett St.	Roentgenology
Murnane, I. J.	New Scotland Ave.	Radiology
Prentice, D. D.	287 State St.	Radiology
Amsterdam		
Wilson, David	156 Guy Park Ave.	Roentgenology
Auburn		
Austin, Sedgwick E.	54 E. Genesee St.	Diagnostic roent.
Bull, Harry S.	11 Williams St.	Roentgenology
Bay Shore		
Cohoon, Carl Wm.	72a S. Clinton Ave.	Roentgenology
Binghamton		
Kann, Ulysses S.	69 Walnut St.	Radiology
Shaw, Perry H.	93 Main St.	Diagnostic roent.
Brooklyn		
Bayles, William H.	1901 Bedford Ave.	Diagnostic roent.
Bell, A. L. Loomis	340 Henry St.	Radiology
Blaser, Homer S.	437 Ovington Ave.	Diagnostic roent.
Cramp, George W.	506, 6th St.	Diagnostic roent.
Currin, Francis W.	1136 Dean St.	Radiology
Dannenberg, Max	1464 Eastern Parkway	Roentgenology
Eastmond, Charles	483 Washington Ave.	Roentgenology *
Ehrenpreis, B.	576 Eastern Parkway	Roentgenology
Elliott, F. E.	122, 76th St.	Radiology
Friedman, Asa B.	41 Eastern Parkway	Radiology
Gold, Louis	835 Willoughby Ave.	Diagnostic roent.
Goldfarb, Louis	608 Ocean Ave.	Diagnostic roent.
Goodman, Moses	2100, 66th St.	Radiology
Held, Louis Arthur	255 Eastern Parkway	Roentgenology *
Howes, William E.	152 Clinton St.	Roentgenology
Ingraham, Ruth	121 DeKalb Ave.	Diagnostic roent.
Kaufman, Julius	201 Eastern Parkway	Roentgenology
Krupp, D. Dudley	178 Pennsylvania Ave.	Roentgenology *
Levine, Isaac	1219, 49th St.	Diagnostic roent.
Liberson, F.	612 Eastern Parkway	Diagnostic roent.
Masterson, John J.	401, 76th St.	Roentgenology
Mendelson, Emanuel	132 Parkside Ave.	Roentgenology *
Nathanson, Louis	700 Ocean Ave.	Radiology
Rendich, Richard A.	116 Remsen St.	Roentgenology
Schenck, Samuel G.	115 Eastern Parkway	Radiology
Schiff, Charles H.	1000 Park Pl.	Diagnostic roent.
Segall, L. Martin	4701, 15th Ave.	Roentgenology *
Silverstein, I. S.	315 New York Ave.	Roentgenology
Strahl, Milton I.	255 New York Ave.	Diagnostic roent.
Taormina, Louis J.	1093 Gates Ave.	Roentgenology
Teperson, H. I.	744 Eastern Parkway	Radiology
Wasch, Milton G.	871 Park Pl.	Radiology
Weinstein, Samuel	1138 Eastern Pkwy.	Roentgenology *
Westing, Siegfried W.	180 Lenox Rd.	Diagnostic roent.
Buffalo		
Barnes, John M.	875 Lafayette Ave.	Roentgenology
Bayliss, J. W.	472 Delaware Ave.	Roentgenology *
Cotter, Stephen V.	1457 Abbott Rd.	Roentgenology
DeGraff, Ralph M.	131 Linwood Ave.	Diagnostic roent.
Gian-Franceschi, J. S.	610 Niagara St.	Diagnostic roent.
Helminiak, M. J.	929 Fillmore Ave.	Diagnostic roent.
Koenig, Edward C.	100 High St.	Roentgenology *
Lape, C. Pearley	183 Oxford Ave.	Diagnostic roent.
Levy, Sidney H.	33 Allen St.	Diagnostic roent.
Levyn, Lester	40 North St.	Roentgenology
Mattick, Walter L.	113 High St.	Radiology
Moses, Chester D.	333 Linwood Ave.	Diagnostic roent.
Orr, Clifford R.	1093 Ellicott St.	Roentgenology *
Schreiner, B. F.	113 High St.	Radiology
Smith, B. B.	333 Linwood Ave.	Roentgenology
Thompson, A. W.	135 Linwood Ave.	Diagnostic roent.
Cooperstown		
Cruttenden, Harry L.		Radiology
McCoy, Charles C.		Roentgenology *
Cortland		
Sornberger, Frank F.	16 Church St.	Roentgenology
Elmhurst		
Startz, Irving S.	40-16 Gleane St.	Roentgenology *
Elmira		
Bennett, John A.	222 W. Church St.	Roentgenology
Far Rockaway		
Lesoff, Morris J.	856 Central Ave.	Roentgenology *
Rivkin, Hyman	918 Cornaga Ave.	Roentgenology *
Glens Falls		
Birdsall, Edgar	140 Glen St.	Roentgenology
Gloversville		
Denham, H. C.	12 Prospect Ave.	Roentgenology
Hempstead		
Robin, Nathaniel H.	131 Fulton Ave.	Roentgenology
Williams, P. A.	131 Fulton Ave.	Roentgenology *
Hudson		
Harris, Rosslyn P.	427 Warren St.	Diagnostic roent.
Ithaca		
Larkin, Leo P.	114 N. Tioga St.	Radiology
Mechanicsville		
Green, Geo. A.		Diagnostic roent.
Middletown		
Schmitz, Walter A.	18 Highland Ave.	Roentgenology
Mount Kisco		
Vaughan, F. E.		Diagnostic roent.
Newburgh		
Miller, Raymond A.	212 Grand St.	Diagnostic roent.
Reed, Charles B.	205 Liberty St.	Roentgenology
New Rochelle		
Chilko, Alexander J.	41 Halcyon Terrace	Roentgenology *
Duckworth, Willard D.	421 Huguenot St.	Roentgenology
New York City		
Abbott, Hodson A.	622 W. 168th St.	Roentgenology
Arons, Isidore	133 E. 58th St.	Roentgen therapy Radium therapy
Baum, S. M.	136 E. 64th St.	Roentgen therapy Radium therapy
Bendick, Arthur J.	100 E. 94th St.	Radiology
Bernstein, J. H.	829 Park Ave.	Radiology
Besser, Herman	114 E. 54th St.	Roentgenology
Boone, Wm. H.	230 Riverside Dr.	Roentgenology *
Bower, Jacob	133 E. 58th St.	Roentgenology
Busby, Archibald H.	133 E. 71st St.	Diagnostic roent.
Cameron, William H.	511 Fifth Ave.	Radium therapy
Carty, John R.	525 E. 68th St.	Roentgenology
Cole, Lewis Gregory	36 E. 61st St.	Roentgenology *
Dieffenbach, W. H.	50 Central Park West	Radiology
Dixon, Geo. S.	218, 2d Ave.	Diagnostic roent.
Duffy, James J.	2 W. 106th St.	Roentgen therapy Radium therapy
Ehrlich, David Ernest	27 W. 86th St.	Radiology
Fairchild, C. W.	11 E. 48th St.	Diagnostic roent.
Ferguson, A. B.	420 E. 59th St.	Roentgenology
Fierstein, Jacob	1018 E. 163d St.	Roentgenology *
Fineman, Solomon	133 E. 58th St.	Diagnostic roent.
Francis, William J.	121 Madison Ave.	Roentgenology
Freid, Jacob R.	1049 Park Ave.	Radiology
Fried, Herman	320 W. 87th St.	Roentgenology *
Friedland, Henry	2021 Grand Concourse	Diagnostic roent.
Friedman, Lewis J.	315 E. 18th St.	Roentgenology
Friedman, Max	1940 Grand Concourse	Diagnostic roent.
Friedman, Milton	309 W. 103d St.	Roentgen therapy Radium therapy
Friedmann, Joseph	53 W. 73d St.	Radiology
Froehlich, Eugene	28 W. 74th St.	Roentgenology
Glassman, I.	138 E. 36th St.	Diagnostic roent.
Golden, Ross	622 W. 168th St.	Roentgenology
Gottlieb, Charles	210 W. 79th St.	Roentgenology
Groeschel, L. B.	40 W. 72d St.	Radiology
Harris, Wm.	70 E. 77th St.	Roentgen therapy Radium therapy
Hauser, Harry	2 W. 106th St.	Radiology
Herendeen, Ralph E.	30 E. 40th St.	Roentgenology *
Hirsch, Henry	2488 Grand Concourse	Radiology
Hirsch, I. Seth	136 E. 64th St.	Radiology
Horvath, Rudolph J.	1085 Park Ave.	Diagnostic roent.
Howard, J. Campbell	40 E. 61st St.	Roentgenology *
Huber, Frank	30 E. 40th St.	Roentgenology *
Illick, H. Earl	111 E. 76th St.	Roentgenology
Imboden, Harry M.	30 W. 59th St.	Radiology
Jaches, Leopold	100 E. 94th St.	Radiology
Jacobs, Alexander W.	40 W. 72d St.	Roentgen therapy Radium therapy
Johnson, Redford K.	30 E. 40th St.	Diagnostic roent.
Kaplan, Ira I.	55 E. 86th St.	Roentgen therapy Radium therapy
Kaplan, Morris	130 Henry St.	Diagnostic roent.
Kasabach, Haig H.	622 W. 168th St.	Radiology
Kassow, Israel O.	1840 Grand Concourse	Diagnostic roent.
Kean, Albert	100 E. 94th St.	Radiology
Klein, Isadore	100 Central Park South	Radiology
Kraft, Ernest	120 W. 70th St.	Roentgenology *
Kurz, Bernard	1235 Grand Concourse	Diagnostic roent.
Landsman, I. J.	391 E. 149th St.	Diagnostic roent.
Lapman, Charles	2754 Grand Concourse	Diagnostic roent.
Law, Frederick M.	140 E. 54th St.	Diagnostic roent.
Lefrak, Louis	251 E. Broadway	Diagnostic roent.
Lenz, Maurice	180 Ft. Washington Ave.	Roentgen therapy Radium therapy
Levin, Isaac	57 W. 57th St.	Radiology
LeWald, L. T.	140 E. 54th St.	Roentgenology
Lewis, Raymond W.	115 E. 61st St.	Diagnostic roent.
Massaro, Alfonso F.	457 W. 163d St.	Diagnostic roent.
Merrill, E. Forrest	30 W. 59th St.	Roentgenology *
Meyer, William Henry	303 E. 20th St.	Roentgenology *
Ossip, Abraham	152 Henry St.	Diagnostic roent.
Ourian, Adom K.	175 Lexington Ave.	Roentgenology
Philips, Herman B.	9 W. 68th St.	Radiology
Pomeranz, Maurice M.	911 Park Ave.	Radiology
Posner, Herman Paul	467 E. 138th St.	Diagnostic roent.
Powell, C. B.	2368, 7th Ave.	Diagnostic roent.
Quimby, A. Judson	5 E. 57th St.	Roentgenology
Radding, Moses B.	255 W. 101st St.	Roentgenology *
Remer, John	200 W. 59th St.	Roentgenology *
Robinson, G. Allen	2 E. 77th St.	Radium therapy
Robinson, William T.	322 W. 72d St.	Roentgenology
Ryan, E. J.	421 W. 113th St.	Roentgenology
Schechter, Samuel	315 W. 86th St.	Diagnostic roent.
Scholz, Thomas	38 E. 85th St.	Diagnostic roent.
Schroeder, Max J.	319 E. 6th St.	Diagnostic roent.
Schwartz, C. W.	33 E. 68th St.	Roentgenology
Schwartz, Irving	1150, 5th Ave.	Diagnostic roent.
Sinberg, Samuel E.	114 E. 54th St.	Roentgenology
Sittenfield, M. J.	29 W. 74th St.	Roentgen therapy Radium therapy
Snow, Wm.	941 Park Ave.	Roentgenology
Spillman, Ramsay	115 E. 61st St.	Diagnostic roent.
Steiner, Joseph M.	170 East End Ave.	Roentgenology *
Stewart, Wm. H.	107 E. 76th St.	Roentgenology
Swenson, Paul C.	622 W. 168th St.	Diagnostic roent.
Taylor, Henry K.	333 West End Ave.	Diagnostic roent.
Unger, Arthur S.	135 E. 74th St.	Roentgenology
Weinberg, Tobias B.	310 E. 15th St.	Roentgenology

NAME	ADDRESS	TYPE OF SERVICE
Weiss, Leopold D.	36 W. 59th St.	Roentgenology
Weitzner, Imre	1015 Lexington Ave.	Radiology
Weitzner, Samuel F.	1882 Grand Concourse	Radiology
White, Stephen	57 W. 57th St.	Roentgenology
Wood, Francis C.	421 W. 113th St.	Roentgen therapy Radium therapy
Niagara Falls		
Scott, Walter Roger.	598 Pine Ave.	Radiology
Ossining		
Wyser, Dorean D.	210 Spring St.	Roentgenology
Oswego		
Lavine, Reuben	25 W. Oneida St.	Roentgenology
Wallace, H. M.	140 W. 5th St.	Roentgenology
Peekskill		
Snowden, Fred A.	108 Depew St.	Roentgenology
Port Chester		
West, Theodore	324 Westchester Ave.	Radiology
Poughkeepsie		
Davison, Chester O.	Lincoln Ave. and Reade Pl.	Radiology
Richmond Hill		
Voltz, Albert L.	11520 Myrtle Ave.	Radiology
Rochester		
Almy, Max A.	16 N. Goodman St.	Roentgenology
Davidson, Sol C.	277 Alexander St.	Radiology
Flynn, James M.	277 Alexander St.	Radiology
Fray, Walter W.	74 Marlborough Rd.	Roentgenology *
Green, Joseph H.	277 Alexander St.	Roentgenology
Sanders, L. J.	213 Alexander St.	Roentgenology
Thomas, Camp C.	476 Lake Ave.	Roentgenology
Warren, Stafford L.	250 Crittenden Blvd.	Radiology
Saratoga Springs		
King, Earl H.	75 Caroline St.	Roentgenology
Schenectady		
Crouch, A. N.	1103 Glenwood Blvd.	Diagnostic roent.
Syracuse		
Caliva, Salvatore	510 Prospect Ave.	Diagnostic roent.
Childs, Donald S.	713 E. Genesee St.	Roentgenology *
Hadley, Lee A.	713 E. Genesee St.	Roentgenology
Henry, Lucas S.	116 E. Castle St.	Roentgenology
Potter, Carlton F.	820 S. Crouse Ave.	Roentgenology
Rulison, Foster C.	713 E. Genesee St.	Roentgenology
Utica		
Hall, Robert C.	258 Genesee St.	Roentgenology
Powers, M. T.	250 Genesee St.	Roentgenology
Valhalla		
Morris, William E.	Grasslands Hospital	Roentgenology *
Watertown		
Pawling, Jesse R.	100 Stone St.	Roentgenology Radium therapy
White Plains		
Duckworth, R. D.	170 Maple Ave.	Roentgenology
Sherman, Herbert.	99 Church St.	Roentgenology
Woodhaven		
Knapp, John C.	8525, 86th St.	Radiology

NORTH CAROLINA

Asheville		
Murphy, G. W.	20 Battery Park Ave.	Roentgenology *
Charlotte		
Lafferty, Robert H.	127 W. 7th St.	Radiology
Phillips, Clyde C.	127 W. 7th St.	Radiology
Durham		
Reeves, R. J.	Duke Hospital	Radiology
Goldsboro		
Ivey, H. B.	139 W. Walnut St.	Roentgenology Radium therapy
Greensboro		
Rhudy, Booker E.	101 N. Elm St.	Roentgenology
Shohan, Joseph	122 S. Green St.	Roentgenology *
Raleigh		
Noble, Robert P.	131 W. Hargett St.	Roentgenology *
Rocky Mount		
Fleming, Major I.	104 S. Franklin St.	Roentgenology
Spencer		
Sigman, F. G.	600, 4th St.	Roentgenology *
Statesville		
McElwee, R. S.	Stearns Bldg.	Roentgenology
Winston-Salem		
Rousseau, J. P.	310 W. 4th St.	Radiology

NORTH DAKOTA

Bismarck		
Berg, H. Milton	221, 5th St.	Roentgenology *
Fargo		
Rothnem, Thos. Peter.	807 Broadway	Roentgenology
Grand Forks		
Woutat, H. G.	318 DeMers Ave.	Roentgenology
Minot		
Gates, Russell	20, 4th Ave. S.W.	Roentgenology *

OHIO

Akron		
Selby, John Hunter.	159 S. Main St.	Roentgenology
Stall, A. H.	525 E. Market St.	Radiology
Stewart, J. E.	159 S. Main St.	Roentgenology
Ashtabula		
Collander, P. J.	217 Park Pl.	Roentgenology
Canton		
Hendrickson, Anna R.	115 Dewalt Ave., N.W.	Roentgenology *
Peters, Chester M.	300 McKinley Ave., N.W.	Radiology
Shorb, John E.	411, 3d St., N.W.	Roentgenology *
Chillicothe		
Holmes, Ralph W.	57 W. Main St.	Roentgenology
Cincinnati		
Bader, E. R.	628 Elm St.	Radiology
Brodberger, Wm. L.	Madison Rd. and East Hill Ave.	Roentgenology
Brown, Samuel	707 Race St.	Roentgenology *
Doughty, Wm. M.	628 Elm St.	Radiology
Goosmann, Charles	22 W. 7th St.	Radiology
Lange, Sidney	19 Garfield Place	Radiology
McCarthy, Justin E.	707 Race St.	Roentgenology
Reineke, Harold G.	Burnet Ave. and Goodman St.	Roentgenology *
Warne, B. M.	19 Garfield Place	Roentgenology
Cleveland		
Bettelheim, Frederick.	1020 Huron Rd.	Radiology
Farmer, H. L.	10515 Carnegie Ave.	Radiology
Freedman, Edward F.	25 Prospect Ave., N.W.	Roentgenology
Freedman, Eugene	3395 Scranton Rd.	Roentgenology *
Hill, Walter C.	10515 Carnegie Ave.	Radiology
LeFevre, Walter I.	9400 Euclid Ave.	Roentgenology
Mahrer, H. A.	10515 Carnegie Ave.	Roentgenology *
May, Raymond V.	1201 Woodside Dr.	Radiology
May, Robert J.	10515 Carnegie Ave.	Radiology
McNamee, Edgar P.	1422 Euclid Ave.	Diagnostic roent.
Nichols, B. H.	2020 E. 93d St.	Radiology
Osmond, John D.	10515 Carnegie Ave.	Radiology
Portmann, U. V.	2045 E. 90th St.	Roentgen therapy Radium therapy
Steel, David	2065 Adelbert Rd.	Roentgenology
Thomas, M. A.	10515 Carnegie Ave.	Radiology
West, James H.	10515 Carnegie Ave.	Radiology
Yoelson, I. E.	2064 E. 9th St.	Roentgenology
Columbus		
Bowen, Chas. F.	332 E. State St.	Radiology
Fulton, Huston F.	327 E. State St.	Roentgenology *
Kirkendall, Ben R.	137 E. State St.	Roentgen therapy Radium therapy
Means, Hugh J.	683 E. Broad St.	Radiology
Miller, W. H.	328 E. State St.	Radiology
Reinert, Edward	247 E. State St.	Radiology
Riebel, Frank A.	15 W. Goodale St.	Roentgenology
Sims, Geo. P.	W. State St. and Davis Ave.	Diagnostic roent.
Weirauk, H. V.	9 Buttles Ave.	Roentgenology
Dayton		
Burnett, Harry W.	201 S. Main St.	Radiology
Delscamp, W. H.	201 S. Main St.	Roentgenology
Jones, Lynn M.	117 S. Main St.	Roentgenology *
Price, Rudolph J.	201 S. Main St.	Radiology
Fremont		
Philo, D. W.	209 W. State St.	Roentgenology
Gallipolis		
Wilson, Milo		Radiology
Hamilton		
Benzing, George, Jr.	R.D. 3	Radiology
Lakewood		
McDowell, John R.	15701 Detroit Ave.	Roentgenology
Shetter, North W.	14600 Detroit Ave.	Roentgenology
Lima		
Thomas, Herbert A.	131 N. Elizabeth St.	Radiology
Massillon		
Holston, J. D.	876 Amherst Rd., N.E.	Diagnostic roent.
Piqua		
Spencer, Robert D.	400 N. Main St.	Roentgenology
Salem		
Heck, Stanton	1160 E. State St.	Roentgenology
Sandusky		
Hill, Lyle S.	526 Columbus Ave.	Roentgenology
Springfield		
Brubaker, E. R.	8 W. Main St.	Radiology
Ultes, Will	E. High St. and Burnett Rd.	Roentgenology *
Steubenville		
Miller, J. E.	401 Market St.	Radiology
Toledo		
Kahn, Dalton	237 Michigan St.	Roentgenology
Murphy, John T.	421 Michigan St.	Radiology
Warren		
Gauchat, Paul C.	197 W. Market St.	Roentgenology
Simpson, D. G.	775 Mahoning Ave., N.W.	Roentgenology
Wauseon		
Maddox, Wm. H.	120 Depot St.	Roentgenology
Youngstown		
Bachman, M. H.	314 N. Phelps St.	Roentgenology *
Baker, Edgar C.	Youngstown Hospital	Radiology
Heberding, John	151 W. Rayen Ave.	Roentgenology
Heeley, J. A.	275 W. Federal St.	Roentgenology
Hudnutt, O. D.	236 Norwood Ave.	Roentgenology
Meyer, N. N.	23 Central Square	Diagnostic roent.
Zanesville		
Holston, J. G. F.	620 South St.	Roentgenology
Loebell, Maurice A.	531 Market St.	Roentgenology *

OKLAHOMA

NAME	ADDRESS	TYPE OF SERVICE
Marlow		
Talley, C. N.	.....	Diagnostic roent.
McAlester		
Johnston, James C.	216½ E. Choctaw Ave.	Roentgenology
Oklahoma City		
Heatley, John E.	119 N. Broadway	Diagnostic roent.
Myers, Ralph Emerson	1200 N. Walker St.	Radiology
Roland, Marion M.	119 N. Broadway	Radiology
Okmulgee		
Ming, Charles M.	220 S. Morton Ave.	Roentgenology
Shawnee		
Hughes, J. E.	14 E. 9th St.	Diagnostic roent. Radium therapy
Sulphur		
Annadown, P. V.	.....	Diagnostic roent.
Tulsa		
Larrabee, W. S.	108 W. 6th St.	Roentgenology
Lhevine, Morris B.	108 W. 6th St.	Diagnostic roent.
Stuart, Leon H.	108 W. 6th St.	Roentgenology

OREGON

Eugene		
Barnett, Arthur F.	130 E. Broadway	Roentgenology
Portland		
Butler, Frank E.	1020 S.W. Taylor St.	Roentgenology
Dixon, William	193, 11th St.	Diagnostic roent.
Haworth, Wallace	193, 11th St.	Roentgenology
Palmer, Dorwin L.	1130 Morrison St.	Radiology
Rees, Sherman E.	3029 N.E. Stanton St.	Roentgenology *
Walker, Ralph C.	812 S.W. Washington St.	Radiology
Wight, Otis B.	193, 11th St.	Radium therapy
Woolley, Ivan M.	1020 S.W. Taylor St.	Roentgenology *

PENNSYLVANIA

Allentown		
Smyth, Thos. L.	111 N. 8th St.	Radiology
Troxell, Wm. C.	941 Hamilton St.	Radiology
Altoona		
Alleman, George E.	1121, 13th Ave.	Roentgenology
Bliss, Gerald D.	1220, 13th Ave.	Radiology
Ashland		
Mulligan, P. B.	.....	Roentgenology
Bethlehem		
Leibert, H. F.	338 Wyandotte St.	Roentgenology
Bryn Mawr		
Bromer, Ralph S.	Bryn Mawr Hospital	Roentgenology
Chester		
Egbert, Walter E.	601 E. 13th St.	Roentgenology *
Sharpe, A. Maxwell	708 Sproul St.	Roentgenology *
Clearfield		
Reiley, W. E.	.....	Radiology
Coatesville		
Perkins, J. A.	367 Chestnut St.	Diagnostic roent.
Conshohocken		
Burvill-Holmes, E.	.....	Diagnostic roent.
Danville		
Hawley, S. J.	.....	Roentgenology *
DuBois		
Gann, G. W.	49 E. Long Ave.	Roentgenology
McCormick, A. F.	Maple Avenue Hospital	Roentgenology
Easton		
Parry, Leo D.	32 N. 3d St.	Radiology
Quiney, James J.	309 Bushkill St.	Radiology
Erie		
Putts, B. Swayne	117 W. 8th St.	Radiology
Greensburg		
McMurray, H. A.	107 S. Main St.	Roentgenology
Singer, John J.	229 S. Main St.	Roentgenology*
Hanover		
Bortner, C. E.	123 York St.	Diagnostic roent.
Harrisburg		
Ritzman, A. Z.	234 State St.	Roentgenology *
Hatboro		
Shoemaker, Robt., III.	.....	Roentgenology
Hazleton		
Dessen, Louis A.	4 W. Broad St.	Roentgenology
Huntingdon		
Keichline, John M.	.....	Radiology
Johnstown		
Scharmann, Frank G.	218 Franklin St.	Diagnostic roent.
Stewart, H. M.	406 Main St.	Radiology
Lancaster		
Davis, Henry B.	530 N. Lime St.	Roentgenology Radium therapy
Snoke, Paul O.	129 College Ave.	Radiology
Swab, Robert D.	23 E. Walnut St.	Roentgenology
Lebanon		
Boger, John D.	341 Cumberland St.	Diagnostic roent.
Lewistown		
Weaver, O. M.	12 S. Main St.	Roentgenology
Lock Haven		
Green, Geo. D.	.....	Roentgenology
McKeesport		
Snedden, A. R.	522 Walnut St.	Roentgenology
Meadville		
Gingold, Joseph R.	476 Pine St.	Roentgenology
Mount Lebanon		
McCullough, Thos. L.	61 Marlin Dr.	Roentgenology
New Castle		
Cooper, J. R.	111 E. North St.	Radiology
New Kensington		
Brown, Prentiss A.	901, 5th Ave.	Roentgenology
Norristown		
Campbell, Raymond F.	514 Swede St.	Diagnostic roent.
Perkasie		
Strouse, O. H.	.....	Roentgenology
Philadelphia		
Alexander, F. K.	8835 Germantown Ave.	Radiology
Barker, Walter C.	Chestnut and 20th Sts.	Radiology
Bertin, Elmer J.	3900 Vaux St.	Roentgenology
Bird, G. C.	1415 W. Erie Ave.	Roentgenology
Bishop, Paul A.	8th and Spruce Sts.	Radiology
Borzell, Francis F.	4940 Penn St.	Roentgenology
Bowen, David R.	8th and Spruce Sts.	Radiology
Bruck, Samuel	2104 Pine St.	Roentgenology
Carpenter, Samuel A.	2265 N. 16th St.	Roentgenology
Chamberlain, W. E.	3401 N. Broad St.	Radiology
Downs, E. E.	Jeanes Hospital	Radiology
Edelken, Louis	1832 Spruce St.	Radiology
Evans, Harry D.	1120 N. 63d St.	Roentgenology *
Farrell, John T., Jr.	235 S. 15th St.	Roentgenology *
Feldstein, Sidney L.	1601 Walnut St.	Roentgenology
Frank, Jacob W.	1730 Spruce St.	Roentgenology *
Gershon-Cohen, J.	255 S. 17th St.	Roentgenology
Heury, Robert W.	768 S. 15th St.	Roentgenology
Hutton, Frederick C.	1409 N. 15th St.	Roentgenology *
Koenig, Carl F.	1734 Harrison St.	Roentgenology
Kornblum, Karl	1818 Lombard St.	Radiology
Manges, Willis F.	235 S. 15th St.	Roentgenology *
Merchant, Albert K.	3401 N. Broad St.	Roentgenology *
Morgan, J. D.	2226 Delancey St.	Radiology
Newcomet, W. S.	3501 Baring St.	Radiology
O'Boyle, Cyril P.	4930 Walnut St.	Roentgenology *
Pancoast, Henry K.	3400 Spruce St.	Radiology
Pendergrass, Eugene P.	3400 Spruce St.	Radiology
Percival, M. F.	Broad and Wolf Sts.	Radiology
Pfahler, George E.	1930 Chestnut St.	Radiology
Post, Joseph W.	1930 Chestnut St.	Roentgenology
Rieger, Chas. L. W.	230 N. Broad St.	Roentgenology *
Rosenbaum, George	1521 Spruce St.	Radiology
Schmidt, Wm. Henry	1601 Walnut St.	Radiology
Sender, Arthur C.	1311 W. Allegheny Ave.	Roentgenology
Solis-Cohen, Leon.	1923 Spruce St.	Roentgenology
Spackman, E. W.	1824 Chestnut St.	Radiology
Stull, H. Tuttle	3260 N. Broad St.	Roentgenology
Sturr, Robert P.	1823 Spruce St.	Roentgenology Radium therapy
Vastine, Jacob H.	1930 Chestnut St.	Radiology
Widmann, B. P.	250 S. 18th St.	Radiology
Wiley, Louis R.	1509 N. 15th St.	Roentgenology
Zulick, J. Donald	2008 Walnut St.	Roentgenology
Philipsburg		
Benson, Andrew L.	.....	Roentgenology
Pittsburgh		
Alley, Reuben G.	4800 Friendship Ave.	Diagnostic roent.
Caldwell, C. S.	520 S. Aiken Ave.	Diagnostic roent.
Fisher, J. W.	500 Penn Ave.	Radiology
Goldsmith, Maurice F.	3459 Fifth Ave.	Roentgenology *
Gorfinkell, Julius	3401, 5th Ave.	Roentgenology
Grier, G. W.	500 Penn Ave.	Radiology
Grimm, Homer W.	500 Penn Ave.	Radiology
Johnston, Zoe A.	500 Penn Ave.	Roentgenology
Langer, Heinz	4800 Friendship Ave.	Roentgen therapy
McAdams, Edward C.	119 S. Highland Ave.	Roentgenology
McCullough, John F.	500 Penn Ave.	Radiology
Ray, William B.	110 E. Stockton Ave.	Roentgenology *
Robinson, Ralph V.	500 Penn Ave.	Radiology
Schaefer, Charles N.	500 Penn Ave.	Radiology
Schumacher, F. L.	500 Penn Ave.	Roentgenology
Sterrett, William J.	110 Stockton Ave.	Roentgenology *
Reading		
Meter, Edward G.	230 N. 5th St.	Roentgenology *
Travis, Richard C.	230 N. 5th St.	Roentgenology Radium therapy
Rochester		
McCaskey, F. H.	.....	Roentgenology
Scranton		
Jackson, Byron H.	327 N. Washington Ave.	Radiology
Milkman, Louis A.	327 N. Washington Ave.	Roentgenology *
von Poswik, Gisela	217 Jefferson Ave.	Roentgenology
Shippensburg		
Stewart, Alexander	.....	Roentgenology
Tamaqua		
Hinkel, William H.	243 E. Broad St.	Roentgenology
Trucksville		
Howell, G. L.	48 Main St.	Roentgenology
Uniontown		
Hess, George H.	104 Morgantown St.	Roentgenology
Upper Darby		
Clagett, A. H.	Long Lane Ct. Apt.	Roentgenology
West Chester		
Pennell, Howard Y.	Chester County Hospital	Roentgenology
Wilkes-Barre		
DesJardins, A.	N. River and Auburn Sts.	Roentgenology *
Rogers, Lewis L.	38 N. Franklin St.	Roentgenology
Wilkinsburg		
McGregor, William J.	312 Penn Ave.	Roentgenology

NAME	ADDRESS	TYPE OF SERVICE
Williamsport		
Wurster, L. E.	416 Pine St.	Roentgenology
York		
Bennett, John H.	1253 W. Market St.	Radiology
Landes, L. S.	454 W. Market St.	Diagnostic roent.
Lutz, J. Fletcher	141 E. Market St.	Roentgenology
RHODE ISLAND		
Newport		
Wheatland, Marcus F.	84 John St.	Diagnostic roent.
Pawtucket		
Unger, Oscar M.	109 Broadway	Diagnostic roent.
Providence		
Albert, Simon	108 Waterman St.	Roentgenology *
Batchelder, Philip	188 Waterman St.	Roentgenology
Benjamin, Emanuel W.	485 Broadway	Radiology
Boyd, James F.	105 Waterman St.	Radiology
Farrell, John T.	385 Westminster St.	Diagnostic roent.
Gerber, Isaac	201 Waterman St.	Radiology
Kelley, Jacob S.	153 Smith St.	Diagnostic roent.
McNally, D. Raymond	563 Hope St.	Roentgenology
Woonsocket		
Garrison, Norman S.	38 Hamlet Ave.	Radiology
SOUTH CAROLINA		
Anderson		
Wrenn, Frank	620 N. Fant St.	Radiology
Charleston		
Rudisill, Hillyer, Jr.	Lucas and Calhoun Sts.	Radiology
Taft, Robert B.	105 Rutledge Ave.	Radiology
Columbia		
Pitts, Thomas A.	1515 Marion St.	Radiology
Rodgers, Floyd D.	1417 Hampton St.	Radiology
Florence		
Hay, Percy D., Jr.	111 W. Cheves St.	Radiology
Greenville		
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SATURDAY, FEBRUARY 24, 1934

RADIOSENSITIVITY OF TUMORS

The relative differences of tumors in sensitivity to roentgen and radium rays are worthy of special study by the clinician, pathologist and radiotherapist. Much information has already been accumulated concerning the reaction of various cells and tissues to radiation. Embryonal tumors, as well as tumors composed of rapidly growing cells, are sensitive to radiotherapy. Lymphoid cells are particularly susceptible to radiation. On the contrary, neurosarcoma, glioma and melanoma are radioresistant.

Stewart [1] defines radiosensitivity as that combination of circumstances resident in the tumor or the host which permits marked or total local tumor regression under doses of radiation sufficiently small to preserve the integrity of the tissues of the host. Degrees of radiosensitivity are recognized. Ewing [2] classified tumors in decreasing order of radiosensitivity as follows: (1) lymphoma, (2) embryonal tumors, (3) cellular anaplastic tumors, (4) basal cell carcinoma, (5) adenoma and adenocarcinoma, (6) desmoplastic tumors, such as squamous carcinoma and fibrocarcinoma, and (7) fibroblastic sarcoma, osteosarcoma and neurosarcoma. Local conditions that may influence the response to radiation are the histologic type, vascularity, fibrosis, amount of fat tissue, presence of infection, metastases, and previous operations.

The histiogenic study of a tumor affords an important criterion by which to judge radiosensitivity. As Borak [3] indicates, the radiosensitivity of a tumor is no accidental attribute but rather the expression of cell structures as well as the biologic qualities of the parent tissue. There are other factors that complicate the problem. The location of a tumor in bone or fat tissue renders it radioresistant. Active infection interferes with successful irradiation. Highly vascular tumors vanish rapidly under irradiation, as a result of necrosis of the capillary endothelium. An important fact emphasized by Ewing is the increased resistance to radiation acquired by a tumor after successive treatments with inadequate dosage. Likewise tumors may become radium fast after a series of treatments with high dosage. Paradoxical differences are observed in tumors when the degree of malignancy is compared with their radiosensitivity. The estimation of these differences is an urgent and difficult task for the pathologist and the radiotherapist. Thus, Ewing presents a list of comparative reactions in epidermoid carcinoma: 1. Squamous cell carcinoma of various grades of malignancy is radiosensitive. 2. Transitional cell carcinoma is highly malignant and radiosensitive. 3. Schneiderian carcinoma is highly malignant and radiosensitive. 4. Basal cell carcinoma is of comparatively low malignancy and radiosensitive. 5. Lymphoepithelioma is highly malignant and very radiosensitive. Markedly anaplastic tissues show increased malignancy and radiosensitivity. Many of these differences in response to radiation become clearer if it is remembered that radium rays arouse similar variations in the reaction of normal cells. Vascular endothelium, lymphatic tissues, leukocytes and ovarian follicles are rapidly destroyed, whereas nervous, fibrous and cartilaginous cells are much more resistant.

The clinical irradiation of tumors is based on this selective action of the rays. Desjardins [4] asserts that the specific sensitiveness of each kind of cell is the dominant single fact of radiology and deserves to be recognized as a law. This sensitiveness seems to be related to the natural life cycle. The lymphocytes, whose metabolic life cycle is shortest, are the most sensitive, while the nerve cells, whose life cycle is longest, are also the most resistant to radiation. Desjardins states that the susceptibility of tumors to irradiation agrees closely with the radiosensitiveness of normal cells of the same kind from which the tumors are derived. However, morphology is not completely adequate for the estimation of radiosensitivity. The general condition of the patient and his constitution also modify the effects of radiation. Anemic cachectic individuals respond poorly to radiotherapy. There are probably hereditary, constitutional and nutritional influences that alter the response to irradiation in different patients afflicted with the same morphologic type of tumor. For example, the red-blond type of person who forms inadequate pigment against sunlight also reacts poorly to radiotherapy.

Another important factor in determining and recording radiosensitivity of tumors is the question of dosage. With improvements in apparatus and technic there are discrepancies and differences in the reporting of dosage. The recent establishment of an international unit of quantity, the international r unit, should create more uniformity in this complicated field and rescue it from the state of "haphazard empiricism" so justly depre-

1. Stewart, F. W.: Radiosensitivity of Tumors, Arch. Surg. **27**: 979 (Dec.) 1933.
2. Ewing, James: Radiosensitivity, Radiology **13**: 313 (Oct.) 1929.
3. Borak, J.: Die Beziehungen zwischen der Strahlenempfindlichkeit maligner Tumoren und ihrer Muttergewebe, Strahlentherapie **44**: 601 (Aug.) 1932.
4. Desjardins, A. U.: Radiosensitiveness of Cells and Tissues and Some Medical Implications, Arch. Surg. **25**: 926 (Nov.) 1932.

cated by Ewing. Roentgen dosage, according to Reinhard,[5] should be definitely prescribed and reported in terms of wavelength, quantity in roentgens, time, target-skin distance and field size. For each type of tumor there is an optimal radiation dosage. Many discrepancies in the reports seem to be due to uncertainties and differences in radiation dosage.

The artificial increase of radiosensibility in tumors is a promising field of investigation. Voltz reports on the introduction of metal salts (cerium-iodine) into tumors and the benefits resulting from secondary rays given off by these chemicals after irradiation. Various substances have been used for this purpose by numerous investigators, but the work is still in the experimental stage. Biologic sensibilization is also practiced; pituitary gland irradiation exerts a beneficial effect in malignant conditions of the female genital tract. The radiosensitivity of tumors is a complex problem demanding the cooperation of workers in various fields. As more facts are accumulated, knowledge in this field will become more quantitative and precise. The solution of the problems of radiosensitivity will increase the effectiveness of radiotherapy and extend its rational indications in the treatment of tumors.

ACID-BASE BALANCE AND CARBOHYDRATE TOLERANCE

One of the lessons that physiology and clinical medicine have learned from the development of modern biochemical research involves the continual striving of the living organism to attain certain states of equilibrium. Cannon of Harvard has referred to this as the principle of homeostasis. Metabolism involves an interplay of unlike reactions that tends, in health, to maintain a steady state conducive to the welfare of the body; in disease there may be disruption of this chemical scheme with consequent detriment to well being. As McLester[1] has expressed the situation, for the maintenance of life and the proper performance of function the cells must be surrounded by a medium that at all times maintains an unchanging reaction and fixed molecular concentration. He points out that the mildly alkaline reaction of the blood indicated by the foregoing figure must be maintained at all costs. Yet many products of metabolism are acid in reaction and tend to operate in the opposite direction, while certain abnormal metabolic processes make matters still worse by producing acids in large amounts, such for instance as the formation in diabetes of beta-oxybutyric and other acids. Carbonic acid, and the acids of sulphur and phosphorus which result from protein metabolism, as well as other acids, must be neutralized. This is done chiefly by sodium and potassium and to a less extent by the other basic elements. Ammonia under certain pathologic conditions is produced in increased amounts and plays a small part in the neutralization of acids, as do also the serum proteins to a slight extent. These last two factors, however, can never bulk large in neutrality regulation, for ammonia is probably toxic and cannot be retained in large amounts, and protein when broken down loses its acid-fixing properties. For purpose of neutralization, the basic elements received from the food are of overwhelming importance.

An apt illustration of what the disturbance of the systemic acid-base balance may involve has been afforded by recent studies of Thompson, Mitchell and Kolb[2] at Trinity College, Dublin. By administration of liberal quantities of ammonium chloride they succeeded in reducing the alkali reserve of the blood plasma to a level comparable with that found in diabetic coma and to raise the urinary excretion of acid by from 100 to 200 per cent and of ammonia by 300 per cent. The acidosis so produced caused a definite failure in dextrose tolerance, shown by hyperglycemia and slow return of the blood sugar to the fasting level following dextrose ingestion, but without any trace of glycosuria.

The association of severe acidosis with diabetes is well known. Joslin[3] states that the danger of acidosis varies according to the rapidity of onset, the age of the patient and the condition of the kidneys. It is his impression that fatal coma may result from an acidosis of only moderate degree which has come on suddenly, whereas in another individual the gradual development of an acidosis of equal severity has been borne with comparative ease. The Dublin biochemists regard it as possible that the acidosis of diabetes, which is incidentally the severest acidosis encountered in human beings except for some patients moribund from uremia, may have a contributory effect on the changes in carbohydrate metabolism occurring in this disease.

DIGESTIVE LEUKOCYTOSIS

The question as to what variations in the white blood cell count may be regarded as within "normal" or physiologic limitations keeps recurring at frequent intervals. Evidently there is no complete accord as to the answer among students of hematology. The growing evidences have been reviewed in these columns from time to time[1] in an effort to determine to what extent technical errors, the nature of the diet, mealtime, and muscular or mental activity may induce definite changes. Until these are known it will be difficult if not actually impossible to ascertain what degrees of aberration from the expected leukocyte counts may be ascribed to

5. Reinhard, M. C.: X-Ray Dosage, Bull. Am. Soc. Control Cancer **16**: 3, 1934.

1. McLester, J. S.: Nutrition and Diet in Health and Disease, ed. 2, Philadelphia, W. B. Saunders Company, 1931.

2. Thompson, G.; Mitchell, D. M., and Kolb, L. C.: The Influence of Variations in Systemic Acid-Base Balance upon Carbohydrate Tolerance in Normal Subjects, Biochem. J. **27**: 1253, 1933.

3. Joslin, E. P.: The Treatment of Diabetes Mellitus, ed. 4, Philadelphia, Lea & Febiger, 1928.

1. An Explanation of Digestive Leukocytosis, Current Comment, J. A. M. A. **72**: 1004 (April 5) 1919. The White Blood Cell Count, ibid. **101**: 1240 (Oct. 14) 1933.

pathologic conditions and thus become diagnostic indexes.

Garrey and his co-workers at Vanderbilt University in Nashville have contended that a count above 7,000 per cubic millimeter is evidence of mental or physical unrest and that all "basal counts" lie between the limits of 5,000 and 7,000, whereas investigators at New York University conclude that mild activity has no constant effect on the count, although, as is well known, severe exercise may cause the number of leukocytes to rise to three or four times the normal figure. Garrey and Butler [2] allege that the low basal leukocyte count of the resting state is unaffected by the intake of large quantities of either protein or carbohydrate. This is one of the last contributions in a sequence of studies that have developed skepticism as to the occurrence of what was formerly designated as "digestive leukocytosis." [3]

The latest observations on the postprandial distribution of leukocytes as exhibited in white cell counts have been made by Lawrence, Stephens and Jones [4] at the University of Rochester, N. Y. They studied the effect of ingestion of a large breakfast in normal adult persons. An increase in the total number of white blood cells in the peripheral blood of normal adult subjects has been shown to occur in the majority of instances following the ingestion of food. The increase is not universal in these observations. It is of interest that there is an interval of from one and one-fourth to two and three-fourths hours between the ingestion of food and the initial increase in the total number of leukocytes. This increase is not transient but may be detected up to four hours after the intake of food. The differences between the highest and lowest figures in each of the fifteen individuals for the entire period ranged from 1,600 to 5,750 per cubic millimeter, with an average of 3,249. Corresponding figures for nine basal recumbent subjects were between 1,249 and 3,300. From a clinical point of view, the Rochester investigators conclude, the effect of food on the white blood cell count is not of a great deal of importance, since the increase was not great and in every instance except one the total number of the cells was less than the ordinarily accepted upper limit of 10,000 per cubic millimeter. In round figures, food would never be expected to increase the total count above 2,000 to 3,000 per cubic millimeter. From a purely theoretical point of view, they add, since basal white blood cell counts will show less variation than others, it would seem that these would be most reliable. However, it appears to them that the inconveniences necessitated by the introduction of such procedures in a clinic far outweigh the advantages to be gained.

2. Garrey, W. E., and Butler, Virginia: Am. J. Physiol. **100:** 351 (April) 1932.

3. Reviews of the voluminous literature appear in Sabin, F. R.; Cunningham, R. S.; Doan, C. A., and Kindwall, J. A.: Bull. Johns Hopkins Hosp. **37:** 14 (July) 1925 and Shaw, A. F. B.: J. Path. & Bact. **30:** 1 (Jan.) 1927.

4. Lawrence, J. S.; Stephens, D. J., and Jones, Edgar: Studies in the Normal Human White Blood Cell Picture: II. The Effect of Digestion on the White Blood Cells, Am. J. Physiol. **106:** 309 (Nov.) 1933.

Current Comment

SELECTIVE REGENERATION AND TISSUE IMMUNITY

The doctrine of "natural variation" in biologic species, with the subsequent "weeding out" of the relatively "unfit," has been a generally accepted law of organic evolution since the middle of the nineteenth century. That similar variations and selectivities are operative with those histologic units which potentially multiply during adult life is suggested by MacNider [1] of the department of pharmacology at the University of North Carolina School of Medicine. His theory of selective histologic evolution, or "regeneration of the fittest," was drawn from studies of kidney repair following experimental toxic nephritis. He found that, after mild toxic injury, renal repair is apparently of the nonselective or nonimmunizing type, the regenerated kidney showing no demonstrable immunity to reintoxication with the same chemical agent. After severer toxic injury, however, renal regeneration is apparently of the evolutionary or selective type, the repaired kidneys having a well marked resistance to such reintoxication. While MacNider makes no assumption that his law of selective regeneration is applicable to the reticulo-endothelial cells, his theory has been received as a valuable working hypothesis in immunology.

SPECIALIZATION IN RADIOLOGY

The rise of roentgenology as a specialty in medicine has been spectacular. The tendency at first to consider it merely a mechanical accessory to diagnosis has been transformed by a realization of the many aspects of its use in the practice of medicine. The literature of the subject is today as advanced and as erudite as that of any other field of medical practice. Nevertheless, the early tendency just mentioned was associated with the commercialization of roentgenology. Indeed, the nature of the work to some extent encouraged such exploitation. One witnesses, for example, the manner in which flat-rate and cut-rate clinics in the field of medical practice, peddling their services by newspaper advertising, offer cheaply the services of a full time roentgenologist as a special bait to the unwary. Among the most important factors in combating this type of effort has been the regular publication by the Council on Medical Education and Hospitals of its standards of competent roentgenologic service and its listing of recognized institutions. Such a list appears in this issue of THE JOURNAL, and physicians will do well to familiarize themselves with this phase of the Council's work. There appears also in this issue the announcement of the formation of the new certifying board in roentgenology, organized along the same lines as the boards already established in ophthalmology, otolaryngology, obstetrics and gynecology, and dermatology. These boards are to be conducted by standards for such certification developed by the Council on Medical Education and Hospitals. Moreover, the American Medical

1. MacNider, W. de B.: The Resistance of Regenerated Cells, Science (supplement) **78:** 6 (Nov. 24) 1933.

Association, through its directory and in other ways, proposes to make available to the medical and general public the names of those who have satisfactorily met the qualifications established in this way. These measures should do much to lift roentgenology out of the welter of low grade and commercial practice into which it seemed inclined to tumble.

Association News

THE CLEVELAND SESSION

Cleveland Hotels

The Subcommittee on Hotels of the Local Committee on Arrangements has furnished the list of Cleveland hotels and rates for rooms, which may be found below. On advertising page 38 of this issue of THE JOURNAL may be found this list together with an application form that may be used to secure reservations through the Subcommittee on Hotels. The form that is printed in the advertising pages may be clipped and, when properly filled in, should be sent at once to Dr. Hubert C. King, Chairman of the Subcommittee on Hotels of the Local Committee on Arrangements, 1604 Terminal Tower, Cleveland, Ohio.

If those who expect to attend the annual session of the American Medical Association will send in their applications at the earliest possible time, there should be no difficulty encountered in securing satisfactory accommodations. Applicants for reservations are especially requested to include a second and a third choice in order that good accommodations may be assured if the desired reservation cannot be had at the hotel of preference.

Hotel Rates in Cleveland

NAME AND ADDRESS	Room—One Person		Room—Two Persons		
				With Bath	
	Without Bath	With Bath	Without Bath	Double Bed	Twin Beds
ALLERTON ..... Chester Ave. & E. 13th St.	$2.00-2.50	$3.00-3.50	$3.00-4.00	$4.00	$4.50
AUDITORIUM ..... St. Clair Ave. & E. 6th St.	.....	2.00-3.00	.....	3.50-4.50	5-6
CARTER ..... Prospect Ave. & E. 9th St.	.....	2.50-5.00	.....	4.00-6.00	5-8
CLEVELAND ..... Public Square	.....	2.50-6.00	.....	4.00-8.00	5-10
COLONIAL ..... 523 Prospect Avenue	1.50	2.50	2.50	3.00	3.50-4
FERN HALL..... 3250 Euclid Avenue	.....	1.50-2.50	.....	2.50-3.00	3.50
GILLSY ..... 1811 E. 9th Street	1.50	2.00-2.50	2.50	3.00-3.50	4.00
HOLLENDEN ..... Superior Ave. & E. 6th St.	.....	2.50-6.00	.....	3.50-7.00	5-12
MECCA ..... 1862 E. 9th Street	.....	1.75-2.00	.....	2.50-3.00	4.00
NEW AMSTERDAM..... Euclid Ave. & E. 22d St.	1.50-2.00	2.50-3.50	2.50-3.00	3.50-4.50	4.50-5
OLMSTED ..... Superior Ave. & E. 9th St.	.....	2.00-3.50	.....	3.50-4.50	5.00
STATLER ..... Euclid Ave. & E. 12th St.	.....	2.50-6.00	.....	4.50-8.00	5-8
STERLING ..... Prospect & E. 30th St.	.....	2.00-3.00	.....	3.00-4.00	3.50-5
RESIDENTIAL HOTELS					
ALCAZAR ..... Surrey & Derbyshire Rds.	.....	3.00	.....	5.00	5.00
BELMONT ..... 3844 Euclid Avenue	.....	2.50	.....	4.00	5.00
BOLTON ..... Carnegie Ave.& E.89th St.	.....	2.00-3.00	.....	3.00-3.50	.....
DEVON HALL ..... 1588 Ansel Road	1.25	.....	2.00	.....	.....
LAKE SHORE ..... 12506 Edgewater Drive	.....	2.00-3.50	.....	3.50-5.50	4-6
PARK LANE ..... Park Lane & E. 105th St.	.....	2.50-3.50	.....	.....	4-6
SOVEREIGN ..... East Blvd. & E. 105th St.	.....	2.00	.....	3.00	5.00
WADE PARK MANOR..... Park Lane & E. 107th St.	.....	3.00-4.00	.....	.....	5-6
WESTLAKE ..... Blount Road	.....	2.50	.....	4.00	4.50

NOTE.—A number of the lower priced single rooms are equipped with double beds. Many of these rooms are available for occupancy by two persons at only $1 more than the single rate.

MEDICAL BROADCASTS

National Broadcasting Company

The American Medical Association broadcasts on a coast-to-coast network each Monday afternoon from 4 to 4:15, Central standard time (5 o'clock, Eastern standard time; 3 o'clock, Mountain standard time, and 2 o'clock, Pacific standard time). The next three broadcasts will be as follows:

February 26. Health Superstitions, Morris Fishbein, M.D.
March 5. Dangerous Drugs, Paul Nicholas Leech, Ph.D.
March 12. Consistent Inconsistencies, R. G. Leland, M.D.

Columbia Broadcasting System

The Association broadcasts on a western network of the Columbia Broadcasting System each Thursday afternoon on the Educational Forum from 4:30 to 4:45, Central standard time. The next three broadcasts will be as follows:

March 1. Frontiers of Medicine, Morris Fishbein, M.D.
March 8. Keeping Your Health, W. W. Bauer, M.D.
March 15. The Health of the Schoolchild, W. W. Bauer, M.D.

Station WBBM

The American Medical Association broadcasts on Tuesday mornings from 8:55 to 9 o'clock, Central standard time, over Station WBBM (770 kilocycles, or 389.4 meters). The subject for Tuesday, February 27, is "Botulism."

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARIZONA

Survey of School Children.—The state board of health, in conjunction with the Civil Works Administration, will make a survey of all children in the elementary schools, to determine the amount of malnutrition present, the prevalence of tuberculosis, and the number of crippled children in the state. In addition, information will be gathered to assist in a program to eliminate trachoma and other diseases endangering the health of children attending the public schools.

ARKANSAS

Society News.—The Mississippi County Medical Society was addressed in Blytheville, January 2, by Dr. Nona B. Ellis, Wilson, on "Importance of Urinalysis."——At a meeting of the Conway-Pope-Yell County Medical Society in Dardanelle, January 18, Dr. George R. Siegel, Clarksville, discussed "Endocrine Therapy in the Climacteric."——Dr. Dewell Gann, Jr., Little Rock, spoke on "Transillumination of Cancer of the Breast" before the Lonoke County Medical Society in Lonoke, January 10.——At a meeting in El Dorado, January 9, under the auspices of the Union County Medical Society, the Tri-County Medical Society was converted into the Fifth Councilor District Medical Society, including Union, Ouachita, Columbia, Calhoun, Lafayette and Dallas. Speakers were Drs. Leonce J. Kosminsky, Texarkana, on "Medical Organization of Today"; J. H. Eugene Rosamond, Memphis, "Practical Points in the Diagnosis and Treatment of Infantile Paralysis," and Robert L. Sanders, Memphis, "Surgical Lesions of the Gallbladder."——Speakers before the Southeast Arkansas Medical Society at Lake Village, January 15, were Drs. Alan G. Cazort, Little Rock, and William H. Hamley, Lake Providence, La., on allergic diseases and organization of the district medical society, respectively.

CALIFORNIA

Dr. Elliott Gives Scripps Lectures.—Dr. Charles A. Elliott, professor of medicine, Northwestern University School of Medicine, Chicago, delivered the annual Scripps Metabolic Clinic lectures at La Jolla and San Diego, January 11-13. His subjects were "Management of Hepatic Disease," "Management of Edema in General Practice," and "Hyperthyroidism and Psychoneurosis." Dr. Elliott also conducted clinics.

Enforce Law on Wiping Rags.—At a meeting, January 2, the California State Department of Health directed that the law which provides for the sterilization of wiping rags be

enforced. Shipments of wiping rags from foreign countries must be sterilized immediately on arrival, before sale and distribution. This action was taken in view of the fact that large quantities of soiled rags are received in this country from Oriental ports, chiefly Japan, it was stated.

Society News.—Dr. Eberle Kost Shelton, Santa Barbara, addressed the Hollywood Academy of Medicine, February 15, on "The Pituitary Growth Hormone."——At a meeting of the Alameda County Medical Association, February 19, speakers were Joe G. Sweet, LL.D., San Francisco, on "Outlook on Malpractice Litigations"; Dr. Hubert N. Rowell, "Testamentary Capacity," and Earl G. Warren, LL.D., Ashland, "The Medical Witness."——Dr. Nathaniel G. Alcock, Iowa City, was among the speakers before the Los Angeles Surgical Society, February 9, on "Treatment of Kidney Tumors of Childhood."

COLORADO

Valley Meeting at Pueblo.—The annual meeting of the Arkansas Valley Medical Association will be held in Pueblo, March 10. The tentative program includes the following speakers:

Dr. George B. Eusterman, Rochester, Minn., peptic ulcer.
Dr. Ray M. Balyeat, Oklahoma City, allergy other than asthma and hay fever.
Dr. Gerald B. Webb, Colorado Springs (subject not announced).
Dr. Edward B. Liddle, Colorado Springs, treatment of anterior and posterior urethritis and complications.
Dr. Edgar C. Webb, Canon City, eye examinations of school children.
Dr. Josephine N. Dunlop, Pueblo, amebic dysentery.
Dr. Thomas D. Cunningham, Denver, diagnosis of allergic manifestations.
Dr. George W. Bancroft, Colorado Springs, surgery.

All members of the state medical society and the societies of adjoining states are invited.

Three New Societies Organized.—Announcement is made of the organization of three new societies in Colorado. At a meeting, January 30, the Washington and Yuma Counties Medical Society was created with Drs. Clayton J. Bennett, Yuma, president; Marvel L. Crawford, Akron, vice president, and Laurence D. Buchanan, Wray, secretary. The Clear Creek Valley Medical Society was organized in Golden, February 1, with the following officers: president, Dr. Roger G. Howlett, Golden; vice president, Dr. George P. Bailey, and secretary, Dr. Orlo R. Sunderland, Edgewater. At a meeting in Brighton, February 3, the Adams County Medical Society was founded with Dr. John C. McCann, Brighton, president; Dr. Ralph D. Elmore, Eastlake, vice president, and Dr. John C. Stucki, Brighton, secretary. Temporary charters have been granted to these societies, pending issuance of permanent charters next September at the annual session of the state medical association.

CONNECTICUT

Institute for Midwives.—The Connecticut State Health Department conducted its tenth annual institute for the education of midwives in New Britain, Nov. 17, 1933. Topics discussed included relation of the health department to midwives; placenta praevia; relation of the physician to the midwife, and the mental attitude of the expectant mother.

Influenza or Food Poisoning?—What was at first thought to be an outbreak of food poisoning in November at the Grace Hospital, New Haven, is believed to have been an outbreak of grip with abdominal symptoms, following investigations by the health board. It was found that 120 people had partaken of a certain meal, November 8, and that the only article of food that had been consumed by them all was freshly cooked steak. About twenty persons of the hospital community became ill between twelve and twenty-four hours after eating this meal, with symptoms of nausea, vomiting and abdominal pain and, in a few cases, mild or moderately severe diarrhea. On the second or third day every one of the patients developed a red and edematous throat, typical of grip. Of fifty patients seen, eight were ill before the meal in question; twenty were ill at about the same time, that is, from one to four days after the meal, and twenty-two were ill more than five days after eating the meal. Of the number who were ill, thirteen had not eaten this or any other meal in the hospital. One person who had eaten the meal was found to have been living in another hospital, where a number of her associates were ill at the same time with what was diagnosed and treated as abdominal grip. One man who had eaten a meal as a test and who had become ill did not develop any of the respiratory signs or symptoms which the others had. It was concluded that there was not a single fact that could not be adequately explained on the basis of an outbreak of influenza, whereas there were many features that could not be explained by a diagnosis of food poisoning.

DISTRICT OF COLUMBIA

Medical Bills in Congress.—H. R. 7210, introduced by Representative Black, New York, and S. 2407, introduced by Senator Shipstead, Minnesota, propose to license barbers in the District of Columbia. Section 2 of the bills provides that the practices authorized thereunder "when done for the treatment of physical or mental ailments or disease shall not constitute barbering." Persons licensed to practice medicine and surgery, osteopathy or chiropractic, commissioned medical or surgical officers of the United States Army, Navy or Marine hospital service, and registered nurses are, among others, exempted from the provisions of the bills.

ILLINOIS

Personal.—Dr. Albert C. Baxter, Springfield, was recently presented with a silver beaver, emblem of noteworthy service in scouting, by the Abraham Lincoln Council of the Boy Scouts of America. The silver beaver is the highest award in boy scout work and is granted only by the National Council of Boy Scouts of America. Dr. Baxter has been identified with the scout movement since its inception in central Illinois.

Medical Economics.—Questionnaires have been issued to physicians in Pulaski, Franklin, Livingston and Winnebago counties by the committee on medical economics of the state medical society in an effort to learn how great a change has occurred in the work done, the income derived between the years 1929 and 1933, and the amount of charity work done. Charity work must consist of work for which no charge is made and must be differentiated from work for which a fee is charged but is uncollectible. These four counties were selected because it was believed they represented, respectively, typical farming in southern Illinois, mining and farming in central Illinois, and industrial development in northern Illinois.

Chicago

Dr. Joslin to Address Medical Society.—Dr. Elliott P. Joslin, clinical professor of medicine, Harvard University Medical School, Boston, will address the Chicago Medical Society, February 28, in the Medical and Dental Arts Building. "The Diabetic of the Future and His Problems" is the subject of Dr. Joslin's lecture. A dinner in his honor will precede the meeting.

Medical Reserve Meeting.—Major General Robert U. Patterson, surgeon general of the U. S. Army, Washington, D. C., will be the speaker at the annual dinner of the medical chapter, Reserve Officers' Association, at the Army and Navy Club, March 5. Dr. Patterson will discuss the "Reserve Officers' Corps of the U. S. Army." All physicians, especially those who served in the World War, are urged to attend the dinner. Arrangements may be made with Lieut. Col. Stanley W. Clark, dental corps reserve, secretary, or Lieut. Col. George T. Jordan, medical corps reserve, president.

Dental Meetings on Medical Relations.—The clinical problems of dentistry and medicine will be treated in sessions on medical relations at the annual midwinter meeting of the Chicago Dental Society in the Stevens Hotel, February 27-March 1. Participating in this phase of the program will be:

Dr. Harry A. Singer, Diseases of the Stomach.
Dr. Richard H. Jaffe, Leukemias.
Drs. Lewis J. Pollock and Harry A. Paskind, Neurology.
Dr. Hayes E. Martin, New York, Differential Diagnosis of Benign and Malignant Tumors of the Oral Cavity.
Dr. James Persons Simonds and Carroll W. Stuart, D.D.S., Malignant Tumors of the Head and Neck.
Drs. Harry E. Mock, Frederick W. Merrifield and Edward L. Jenkinson, Traumatic Injuries of the Head and Neck.
Drs. Francis E. Senear, Edward A. Oliver and Joseph E. Schaefer, Dermatology and Diseases of the Head and Mouth.

While these problems will be discussed from the medical aspect, the contingent dental relationship will also be considered.

INDIANA

District Meeting.—Dr. Ernest M. Conrad, Anderson, was elected president of the Eighth District Medical Society, Anderson, December 7, succeeding Dr. Henry W. Gante, Anderson, who had held the office since 1924. Muncie was chosen as the place for the 1934 session. The Madison County Medical society acted as host for this meeting at which speakers included Drs. Byrl R. Kirklin and Frank C. Mann, both of Rochester, Minn., on "X-Ray Diagnoses of Digestive Disturbances" and "Liver Diseases," respectively.

Personal.—Dr. Bayard G. Keeney, Shelbyville, has been appointed health commissioner of Shelby County.——Dr. Noah A. Rockey, Fort Wayne, has been named health officer for Allen County.——Dr. Christian A. Dresch, Mishawaka, has retired from active practice.——Dr. John C. Carney has been

appointed health officer of White County, succeeding Dr. Arthur B. Cray, who held the position ten years.——Dr. Sayers J. Miller, assistant medical adviser at Purdue University, has been named acting director of student health service, succeeding the late Dr. Oliver P. Terry.

IOWA

Memorial to Dr. Prentiss.—A bronze bust of Dr. Henry James Prentiss, late professor and head of the department of anatomy, histology, embryology and neuro-anatomy, University of Iowa College of Medicine, Iowa City, was placed in the medical library of the university, Nov. 6, 1933, the gift of the Alumni Association of the college of medicine. Three friends of Dr. Prentiss, Drs. Nathaniel G. Alcock, Iowa City, Verne C. Hunt and Charles J. Rowan, Santa Monica, Calif., presented the pedestal on which it stands. Dr. Prentiss was also director of the laboratories of histology and embryology of the college of medicine. He died, May 17, 1931.

Society News.—At the annual midwinter meeting of the Upper Des Moines Medical Society in Emmetsburg, January 23, speakers included Drs. Fred L. Knowles, Fort Dodge, on reduction of fractures of the neck of the femur, double pin method, and Joseph B. Priestly, Des Moines, surgical management of peptic ulcer.——Dr. Morris Fishbein, editor of THE JOURNAL, Chicago, will address the Linn County Medical Society, March 8, on "Current Trends in Medical Practice." Dr. Walter L. Bierring, Des Moines, President-Elect, American Medical Association, will discuss the paper.

KANSAS

Personal.—Dr. Carl M. Vermillion, Pratt, has been designated health officer of Pratt County, succeeding Dr. Marshall E. Christmann.——Dr. William K. Fast has been named health officer of Atchison and Atchison County.——Dr. Henry S. Dreher, Luray, has been named health officer for Russell County.

Society News.—Dr. William P. Callahan, Wichita, discussed tumors of the breast before the Ford County Medical Society, Dodge City, January 12.——Dr. Frank L. Rector, Evanston, Ill., discussed "Present Day Cancer Problems" before the Wyandotte County Medical Society, January 16, and Dr. Ralph G. Ball, Manhattan, "Diseases of the Suprarenal Gland with Research Studies," February 6.

KENTUCKY

Personal.—Dr. Leonard A. Crosby, Williamsburg, has been named health officer of Todd County, succeeding Dr. Thomas J. La Motte, who will engage in graduate study at Tulane University of Louisiana School of Medicine, New Orleans.——Dr. John H. Blackburn, Bowling Green, has been appointed a member of the state board of health to succeed Dr. Laurence T. Minish, Frankfort. Dr. E. Murphy Howard, Jr., Harlan, and Carl Johnson, D.O., Louisville, were reappointed to the board.

Bills Introduced.—H. 533, to liberalize those provisions of the workmen's compensation act requiring an employer to furnish medical, surgical, hospital and nursing service to an injured employee, proposes to increase the limit of an employer's liability to $100 for hospital treatment and $150 for medical, surgical and nursing treatment. H. 434 proposes to authorize the sterilization of inmates of state hospitals for the insane or feebleminded. S. 254 proposes to reorganize the executive branches of the state government. Among other things, it proposes to create a department of health, to exercise all administrative functions of the state in relation to public health, sanitation and the prevention and control of communicable diseases. It proposes, too, to create a division of licensing in the department of health to assume all functions with respect to the examining and licensing of applications for professional licensure, now vested in the state board of health, the board of examiners of nurses, the board of chiropractic examiners, the board of dental examiners, the Kentucky Pharmaceutical Association and the board of pharmacy.

MASSACHUSETTS

Personal.—Dr. George M. Sullivan has resigned as superintendent of the Pondville Hospital, Wrentham, after four years' service. Dr. George L. Parker has been appointed to succeed Dr. Sullivan.

Dr. Martin Honored.—Dr. George Forrest Martin, who recently resigned as senior surgeon of the Lowell General Hospital, Lowell, after forty years' service, was honored at a dinner by associates, December 7. Dr. Chester Stoyle Baker was toastmaster. In addition to Dr. Martin, speakers included Drs. Archibald R. Gardner, his successor as senior surgeon; Howard W. Jewett, John H. Nichols, Tewksbury, and Mr. John F. Sawyer. Dr. Martin will continue as a member of the board of trustees of the hospital and as a consultant.

Medical Pageant.—The third annual medical historical pageant, given by the students of Tufts College Medical School and directed by Dr. Benjamin Spector, associate professor of anatomy, was presented in conjunction with the reception to the entering class in Boston, Nov. 14, 1933. Students participating in these pageants are usually taken from the third and fourth year classes. This year's presentation depicted the following characters:

From Egyptian medicine, 4500-1000 B. C.: Imhotep, Antep, Amenemhat, Khuy and Kekanacht.
From Greek temple medicine, 1200 B. C.-130 A. D.: Aesculapius, Hippocrates, Chrysippos, Aretaeos.
From Greek philosophical medicine: Plato (428-347 B. C.), Aristotle (384-322 B. C.).
From Renaissance medicine: Roger Bacon (1214-1284).
From Modern Medicine: Lavoisier (1743-1794), Pinel (1754-1826), Jenner (1749-1823), Laënnec (1781-1826), Darwin (1809-1882), Virchow (1821-1902), Roentgen (1845-1923).

Appropriate historical remarks were made between the appearances of the characters. There was also an exhibition of classical texts of the characters portrayed in the pageant by Mr. James F. Ballard, director, Boston Medical Library. The presentation of the medical pageant was introduced at Tufts in 1930 by Dr. Spector.

MICHIGAN

Society News.—Dr. George K. Fenn, Chicago, discussed clinical and experimental considerations of the coronary circulation before the Calhoun County Medical Society in Battle Creek, January 9.——Dr. Frederick H. Falls, Chicago, discussed "Pernicious Vomiting of Pregnancy" at a meeting of the Wayne County Medical Society, Detroit, February 5.——At a meeting of the Monroe County Medical Society in Monroe, January 18, Drs. Lawrence H. Carleton and James Clark Moloney, Detroit, spoke on "Relief of Bladder-Neck Obstruction" and "Lumbar Puncture," respectively.

Emergency Hospitalization.—Injured persons able and willing to pay for hospital care will be taken to private institutions in the future, in accordance with a recent order of John P. Smith, police commissioner of Detroit. Persons becoming ill in public places will be taken to the Receiving Hospital unless they request to be taken to another hospital or to their own homes, provided the distance of the latter is not appreciably greater. On the recommendation of a physician or if it appears necessary to the officer in charge because of the seriousness of the injury or illness, however, the person shall be taken to the nearest hospital. This arrangement is the result of several conferences of the commissioner with representatives of the Wayne County Medical Society and the Detroit Hospital Council. It is believed that the enforcement of the order will save time in emergencies, long hauls and expense to the city, and will give mental and physical satisfaction to injured citizens. In addition, the practice of rushing injured persons to a city hospital against their wishes will be abolished.

MISSISSIPPI

Bills Introduced.—S. 236 proposes to amend the privileged communications statute by providing that it shall not apply in criminal cases in which the mental or physical condition of the patient is material in determining the innocence or guilt of the accused or the extent of his guilt, or to any civil case in which the mental or physical condition of the patient is put in issue by the patient or by his personal representative, heirs or distributees. S. 248 proposes to extend the period during which an action for malpractice may be brought after the occurrence of the cause of action from one to three years.

MISSOURI

Medicomilitary Symposium.—The Kansas City Southwest Clinical Society and the medical department, seventh corps area, U. S. Army, are cooperating in a spring medicomilitary symposium at Kansas City General Hospital, March 12-17. Sessions will be given over to a consideration of the various aspects of heart disease, tuberculosis, diseases of the digestive system and syphilis. Evening programs will be presented by regular army officers from the seventh corps area; subjects selected for discussion will include the "Army's Job in the CCC Activities," "Mechanization of Modern Armies," "The Medical Regiment," "Modern Conceptions of Dietary Needs," "Aviation in Medicine," and "Smallpox and Vaccination." Three topics will occupy one afternoon session: water, the medical department and joint operations of the army and navy

in overseas expeditions. Tuesday evening, March 13, will be devoted to a joint meeting of the Jackson and Wyandotte County medical societies, and Friday evening to that of the Kansas City Academy of Medicine, when the speaker will be Dr. Charles A. Doan, Columbus, Ohio, on "Clinical Implications of Experimental Hematology." The Kansas City Dermatological Society will present a symposium on syphilis.

NEW JERSEY

Bill Introduced.—S. 136, to amend the law providing liens for hospitals treating persons injured through the fault of others, proposes to authorize similar liens for physicians and surgeons.

NEW YORK

Bills Introduced.—A. 626, to amend the law providing for the exemption of hospital ambulances from registration fees, proposes to limit such exemption to ambulances used exclusively to carry sick or injured persons. A. 715, to amend those provisions in the medical practice act relating to osteopathy, proposes (1) to designate osteopaths as osteopathic physicians and (2) to provide that "a license to practice osteopathy shall not entitle the holder to perform any surgical operation involving incision or the opening of a natural body cavity, for the removal of cancer or other tumor, for the amputation of an extremity or appendage, or for the removal of any gland or organ, or part thereof, of the human body; nor shall such license permit the holder thereof to administer drugs, except narcotics, anesthetics, antiseptics, vaccines and antitoxins." A. 716 proposes to give hospitals treating persons injured through the negligence of others liens on all rights of action, suits, claims, judgments or settlements accruing to the injured person by reason of their injuries. A. 728, to amend the workmen's compensation act, proposes, in effect, to make compensable all occupational diseases contracted in any employment covered by the act. A. 740 proposes to prohibit hospitals, supported wholly or partly at public expense, from charging any fee for medical, dental or pharmaceutic services rendered while operating clinics to which the public is invited. A. 744 proposes to establish in each public welfare district a central bureau to which persons desiring medical, surgical or other treatment in clinics are to apply. This bureau, after investigation, is to issue a permit to the applicant entitling him to treatment by a clinic located in the hospital that is nearest the place of his residence.

New York City

Safety Conference.—The fifth annual Greater New York Safety Conference will be held at the Hotel Pennsylvania, March 6-7. Among speakers will be Dr. Hart Ellis Fisher, Chicago, on "The Problem of the Return to Work Employee"; Dr. William R. Redden, New York, "First Aid in Schools," and Philip Drinker, Ch.E., Boston, "Protection of Workmen Against Dust Inhalation."

Hospital News.—The Metropolitan Hospital Alumni Association was recently organized with Drs. Samuel Schechter as president and Abraham P. Matusow as secretary.——A physical therapy department was opened at New York Polyclinic Medical School and Hospital, December 11. The department is in the new clinic building of the hospital and is under the direction of Dr. Richard Kovacs.

Personal.—Dr. Samuel J. Kopetzky was recently made a Knight of the Legion of Honor by the French government for his collaboration on medical work with French scientists.—— Dr. Charles J. Sutro has been awarded the Mr. and Mrs. Frederick Brown Orthopedic Research Fellowship offered through the Hospital for Joint Diseases. It includes a stipend of $2,400. Dr. Sutro has been a member of the hospital staff for two and a half years.——Dr. Peter F. Amoroso has been appointed second deputy commissioner of corrections; among other duties he will direct the prison hospitals.——Friends of Dr. Francis Huber presented to him an illuminated testimonial describing their appreciation of his work as physician and teacher on his eightieth birthday, February 2.

Impostor Convicted.—It is reported that Samuel Greenberg, who practiced medicine for more than a year with a forged regent's diploma and county certificate and who used the address of Dr. Samuel Greenberg of Brooklyn to obtain a genuine registration certificate, was sentenced, December 21, to six months in the workhouse after he pleaded guilty to practicing without a license. Sentence was suspended in consideration of the fact that he made a complete confession at the time of his arrest. It appears that Greenberg worked himself into the good graces of a New York physician and asked to be allowed to have mail delivered at his office. Later he wrote to the state board of medical examiners giving the real Dr. Greenberg's address and requesting that as he was moving from Brooklyn to New York his annual registration certificate be mailed to him at the new address. After this the spurious "Dr." Greenberg disappeared. Investigators of the office of Assistant Attorney General Sol Ullman found him practicing medicine at 1280 Walton Avenue, The Bronx, and arrested him, Oct. 18, 1933, on a charge of practicing without a license. Greenberg then implicated a Filipino artist, Julian Noveno, who, he alleged, forged the state and county documents. Noveno was indicted on a charge of forging medical credentials.

OHIO

Centennial Celebration at Ohio State University.—The one hundredth anniversary of Ohio State University College of Medicine, Columbus, will be celebrated with three days of reunions, clinics, addresses and exhibits, March 1-3. Tracing its history to the Willoughby Medical College established in 1834 at Willoughby, Ohio, the present school of medicine is the result of a series of mergers and consolidations, which have brought together the Willoughby College, Starling Medical College, Columbus Medical College, Ohio Medical University and Starling-Ohio Medical College. The program will open Thursday morning, March 1, with clinics in medicine and surgery at University and St. Francis hospitals by Drs. Francis Carter Wood, New York; Gatewood, Chicago, and Bernard H. Nichols, Cleveland, among others. Laboratory demonstrations, exhibits and reenactments of historical events by students and faculty will be held in the afternoon. A dinner will be given for the faculty and guests in the evening, followed by a meeting in University Chapel. Dr. John H. J. Upham, dean of the School of Medicine, will preside at this session and speakers will be:

Dr. Francis R. Packard, Philadelphia, Earliest Development of Organized Medical Education in This Country.
Dr. Jonathan Forman, Columbus, History of the College of Medicine.
George W. Rightmire, LL.D., president, Ohio State University, Columbus, The Place of Medical Education in the State University.

A special convocation will be held in the morning of March 2, at which Dr. Henry S. Houghton, Chicago, will speak on "The Challenge of the Future to Medical Education." Following about sixty class reunions at the noon hour, addresses will be presented by Drs. Francis Carter Wood, on cancer, and Edward Francis, Washington, D. C., on tularemia. Various medical fraternities will hold banquets in the evening. The morning of Saturday, March 3, will be devoted to surgical clinics directed by Drs. Gatewood, Mont R. Reid, Cincinnati, and Roy D. McClure, Detroit; and medical clinics by Frank A. Hartmann, Ph.D., Buffalo, and Dr. Torald H. Sollmann, Cleveland. Dr. George T. Pack, New York, will also deliver an address on "Irradiation Therapy" during the morning. Following a luncheon at University Hospital for alumni and guests, clinics will be conducted by Drs. Robert M. Zollinger, Boston; Robert A. Moore, Raymond L. Pfeiffer and Samuel T. Mercer, New York. In the evening an Alpha Omega Alpha initiation and supper will be given, followed by the first annual Alpha Omega Alpha public address, presented by Dr. Charles P. Emerson, former dean, Indiana University School of Medicine, Indianapolis. In connection with the celebration, an exhibit of medical and dental equipment used in Ohio during the past century has been arranged. Invitations are being issued to alumni of the school and its predecessors, but the profession generally is invited to attend the program of activities, the university announces. Dr. Ernest Scott is general chairman of the centennial observance.

PENNSYLVANIA

Society News.—Dr. Roy Wesley Scott, Cleveland, addressed the Washington County Medical Society, February 9, on "Modern Aspects of Cardiovascular Diseases from the General Practitioner's Standpoint."——Dr. Bernard H. Nichols, Cleveland, addressed the Pittsburgh Urological Association, February 12, on "The Art of Pyelographic Interpretation."——Dr. Curtis C. Mechling addressed the Pittsburgh Pediatric Society, February 16, on "Common Disorders of the Rectum and Anus and Their Management."——Speakers before the Pittsburgh Academy of Medicine, February 13, were Drs. Frank W. Donley, on "Trichinosis"; Evan W. Meredith, "Pyloric Stenosis," and David Silver, "Physical Diagnosis and Significance of Sounds In and Near Joints." —— Dr. George B. Stull, Harrisburg, delivered his address as retiring president of the Dauphin County Medical Society, January 2, on gallbladder disease.—— Dr. Ford A. Miller, Philadelphia, addressed the Delaware County Medical Society, Chester, February 8, on "Bleeding in Labor."——Dr. Jesse O. Arnold, Philadelphia, addressed the Medical Society of Franklin County, January 16, on obstetrics.

Philadelphia

University News.—Temple University celebrated its fiftieth anniversary during the week of February 11-17. The medical school as its part offered an intensive course of lectures, clinics and demonstrations to evaluate the present status of the medical art and its basic sciences. All regularly qualified physicians in New York, New Jersey, Maryland, Delaware and Pennsylvania were invited. Dr. Lewellys F. Barker, Baltimore, delivered an address on "Medicine in Soviet Russia" before the medical department, February 14. The honorary degree of doctor of science was conferred on Drs. Royal S. Copeland, New York, and George E. de Schweinitz, Philadelphia, at the midyear commencement, February 15.

TEXAS

Health at El Paso. — Telegraphic reports to the U. S. Department of Commerce from eighty-six cities with a total population of 37 million, for the week ended February 10, indicate that the highest mortality rate (28.2) appeared for El Paso and that the rate for the group of cities as a whole was 12.2. The mortality rate for El Paso for the corresponding week of 1933 was 9.6 and for the group of cities, 11.8. The annual rate for eighty-six cities was 12.5 for the six weeks of 1934, as against a rate of 12.7 for the corresponding period of the previous year. Caution should be used in the interpretation of these weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have a large Negro population may tend to increase the death rate.

Sam Kaplan Convicted.—The Texas State Board of Medical Examiners reports the conviction in the criminal court of Harris County, Nov. 29, 1933, of "Dr." Sam Kaplan, who had been practicing medicine in Houston without a license. He was sentenced to pay a fine of $50 and costs and serve one day in jail, escaping with this light sentence because he promised to discontinue practicing until he obtains a license. Kaplan's record indicates that he was graduated in 1917 from the St. Louis College of Physicians and Surgeons, one of the schools involved in the Missouri diploma mill scandal. He was never licensed to practice, having failed at examinations in Missouri five times in 1921, 1922 and 1923. In 1924 when the Missouri schools were investigated it was shown that Kaplan was associated with Reuben Adcox in those operations (THE JOURNAL, July 5, 1924, p. 46). Other records of the American Medical Association indicate that he was connected with the Connecticut diploma mill scandal and also with the so-called Oriental University of Washington, D. C., another fake school. The Texas board reported that Kaplan applied for admission to its examinations, Nov. 21, 1933, but was rejected because of his inability to prove that he was "of good moral character" and because of his conviction in a federal court in Washington of conspiracy to use the mails to defraud in connection with the "Oriental University."

VIRGINIA

Bills Introduced.—A bill introduced in the house of delegates, February 9, by Mr. Stephens, and referred to the committee on finance, proposes to require physicians to obtain annual "revenue licenses" from the state. Physicians licensed for less than five years are to pay $15 annually, while physicians licensed for more than five years are to pay $25, but no physician whose gross annual income is less than $500 is to pay more than $15. A bill introduced in the house of delegates, by Mr. Coleman, February 8, and referred to the committee on general laws, proposes to create a board of barbering and to regulate the practice of barbering.

WASHINGTON

Personal.—Dr. Francis M. Carroll has been appointed health officer of Seattle to succeed Dr. John S. McBride, who died Nov. 15, 1933. Dr. Carroll served a term as health officer about thirty years ago.——Dr. Dale O. Nugent was elected mayor of Centralia recently.

Annual Surgical Clinics. — The Seattle Surgical Society held its annual clinics, February 16-17, at Harbor View Hospital. At the annual dinner Saturday evening, Prof. Charles E. Martin, Ph.D., of the University of Washington, made an address on "Present Trends in European Politics."

Society News. — Dr. Clarence W. Brunkow, Portland, addressed the Yakima County Medical Society, Yakima, December 11, on surgery in children.——Drs. Hulett J. Wyckoff and Harold E. Nichols, Seattle, addressed the Chelan County Medical Society in December at Wenatchee, on injuries to the back and roentgen diagnosis, respectively.——Drs. Charles R. McColl and Glenn M. Steele, Tacoma, addressed the Pierce County Medical Society, Tacoma, December 12, on "Clinical Application of Laboratory Medicine" and "Office Procedure in Gynecology," respectively.——Dr. Horace J. Whitacre, Tacoma, among others, addressed the Snohomish County Medical Society, Everett, December 6, on federal unemployment medical relief. ——Dr. Robert F. E. Stier, Spokane, among others, addressed the Walla Walla Valley Medical Society, Walla Walla, December 14, on new laboratory technics in relation to diagnosis and treatment of disease.

GENERAL

Mortality Rates for Large Cities in 1933.—Eighty-six large cities in the United States which report their mortality rates weekly to the U. S. Department of Commerce had an average death rate of 11 per thousand of population during the calendar year 1933, according to figures in *Public Health Reports*. Washington, D. C., and Memphis, Tenn., had the highest rates (16); New Orleans and Nashville, Tenn., followed with 15.6 and 15.1, respectively. The lowest rate appeared for Detroit (6.9), which was followed by Akron, Ohio, and South Bend, Ind., with 7.3 and Milwaukee, 8. The provisional infant mortality for 1933 for the eighty-six cities was 53, the actual number of deaths under 1 year being 29,776. The rate for 1932 was 55. The lowest infant mortality rate appears for Fort Wayne, Ind., with 26; the next in order were Tacoma, Wash., with 28; Long Beach, Calif., and Des Moines, Iowa, each of which had a rate of 30.

Congress Limits Medical Service for CWA Employees.—Medical and hospital service and disability and death benefits for employees of the Federal Civil Works Administration have been limited by act of Congress, approved February 15, to cases of injury by accident causing damage or harm to the physical structure of the body. Diseases that naturally result from such injuries entitle injured employees to medical and hospital services and disability and death benefits. Other diseases do not, even though they arise out of and in the course of employees' discharge of their duty. The change seems to work no change with respect to medical and hospital services, except to limit them to cases of traumatic injury as defined by the act and diseases resulting from such injuries. Employees who suffer from other diseases will have to look for medical and hospital relief to the state or local relief agencies, to the Federal Emergency Relief Administration or to the charity of physicians.

Southeastern Surgeons Meet in Nashville.—The fifth annual assembly of the Southeastern Surgical Congress will be held in Nashville, Tenn., March 5-7, under the presidency of Dr. Willis C. Campbell, Memphis. Among speakers who will address the sessions are:

Dr. William Wayne Babcock, Philadelphia, Postoperative Abdominal Complications and Their Management.
Dr. Chevalier Jackson, Philadelphia, Carcinoma and Sarcoma of the Esophagus.
Dr. John F. Erdmann, New York, Tumors of the Breast.
Dr. Joseph F. McCarthy, New York, Developments in Operative and Diagnostic Instrumental Urology.
Dr. George W. Crile, Cleveland, Five Points in Surgery of the Gallbladder and Ducts.
Dr. Paul G. Flotow, Seattle, Vascular Diseases of the Extremities and Their Treatment.
Dr. George H. Semken, New York, Some Experiences in Cancer Surgery.
Dr. Arthur E. Hertzler, Halstead, Kan., Reaction of Tissues to Injury in Relation to Wound Healing and Drainage.
Dr. John J. Moorhead, New York, Precepts in Traumatic Surgery.
Dr. Melvin S. Henderson, Rochester, Minn., Derangements of the Knee Joint.
Dr. Fred H. Albee, New York, Bacteriophage in Wound Treatment.

The annual banquet will be held at the Andrew Jackson Hotel, Tuesday evening, with Dr. Perry Bromberg, Nashville, as toastmaster and Dr. Stewart R. Roberts, Atlanta, as the speaker.

Society News. — At the seventh annual meeting of the Dermatological Conference of the Mississippi Valley in Chicago, January 20, with the Chicago Dermatological Society as host, there were representatives from St. Paul, Minneapolis, Rochester, Ann Arbor, Detroit, St. Louis, Oklahoma City, Pittsburgh, Cincinnati, Houston, Texas, and other cities. Thirty-four patients with uncommon diseases were shown at the clinical demonstration in the afternoon.——The sixty-seventh annual meeting of the American Otological Society will be held at the Claridge Hotel, Atlantic City, April 6-7.—— Dr. Edwin L. Perkins, Sioux Falls, S. D., was elected president of the Sioux Valley Medical Association at its annual meeting in Sioux City, recently, succeeding Dr. Sidney A.

Slater, Worthington, Minn. Dr. Charles C. Telleson, Wynot, Neb., was reelected vice president, and Dr. Ludwig L. Sogge, Windom, Minn., named vice president to succeed Dr. Perkins. Dr. William Roscoe Jepson, Sioux City, was reelected secretary, and Dr. Walter R. Brock, Sheldon, Iowa, treasurer.

Medical Grants of National Research Council. — The committee on grants-in-aid of the National Research Council announces the following grants in the field of the medical sciences:

Dr. Garland Howard Bailey, associate professor of immunology, Johns Hopkins University School of Hygiene and Public Health, Baltimore, on heterophile antigens of bacteria and plant and animal tissues.

Raymond L. Garner, Ph.D., assistant in medicine, Johns Hopkins University School of Medicine, Baltimore, enzymatic liquefaction of clotted human blood.

Dr. Ralph W. Gerard, associate professor of physiology, University of Chicago, activity of nerve tissue and the central nervous system.

Dr. Balduin Lucke, professor of pathology, University of Pennsylvania School of Medicine, Philadelphia, a neoplastic disease of the common leopard frog, Rana pipiens.

Drs. John R. Paul, assistant professor of medicine, and James D. Trask, associate professor of pediatrics, Yale University School of Medicine, comparison of different strains of poliomyelitis virus.

Arthur H. Smith, Ph.D., associate professor of physiological chemistry, Yale University School of Medicine, the influence of various inorganic ions upon the body weight and blood changes of experimental animals.

The National Research Council will consider further requests for research assistance later in the spring. Applications, presented on forms which will be furnished by the secretary of the committee on grants-in-aid, must be on file with the committee by March 15. The address of the council is 2101 Constitution Avenue, Washington, D. C.

Physical Therapy Meeting.—The midwestern section of the American Congress of Physical Therapy will hold its spring session, March 13, in Indianapolis. The afternoon session will be held at the Indiana University School of Medicine, and the evening meeting at the Athenaeum. The following program has been announced:

Some Problems in Physical Therapy, Dr. Albert F. Tyler, Omaha, president of the American Congress of Physical Therapy.

Treatment of Precancerous Lesions of the Face, Dr. Disraeli Kobak, assistant clinical professor of physical therapy, Rush Medical College, Chicago.

Experimental and Clinical Observations on the Use of Irradiated Ergosterol, Carlos I. Reed, Ph.D., assistant professor of physiology, University of Illinois College of Medicine.

Cancer of the Hand (demonstration clinic), Dr. Edwin N. Kime, associate in medicine, Indiana University of School of Medicine, Indianapolis.

Physicochemical Basis of Physical Therapy, Dr. Reinhard Beutner, professor of pharmacology, University of Louisville School of Medicine.

A Newer Conception of the Action of Infra-Red Radiation in Upper Respiratory Infections, Dr. Abraham R. Hollender, instructor in otorhinolaryngology, University of Illinois College of Medicine.

Physical Energies in the Diagnosis and Treatment of Cancer of the Breast, Dr. Argus David Willmoth, Louisville.

An Electrosurgical Method for Obliterating the Gallbladder, Dr. Max Thorek, professor of surgery, Cook County Graduate School of Medicine, Chicago.

Physical Therapy in the Rehabilitation of the Disabled, Dr. John Stanley Coulter, associate professor of physical therapy, Northwestern University Medical School, Chicago.

Medical Bills in Congress.—*Changes in Status:* H. R. 1766 has been reported to the House, without amendment, with a recommendation that it pass (H. Rept. 706). The bill provides medical services after retirement on annuity to former employees of the United States disabled by injuries sustained in the performance of their duties. H. R. 6663, the Independent Offices Appropriation Bill, has been reported to the Senate, with amendments (S. Rept. 294). The proposed amendments to the bill authorizing additional benefits to veterans were rejected by the Senate Committee on Appropriations. In the committee report, however, it is stated: "The statement was made by the chairman of the subcommittee having charge of the bill that he would give notice of a motion to suspend the rules for the purpose of offering certain amendments affecting veterans' benefits and the committee recommends that this motion be agreed to in order that veterans' legislation may be considered as amendments to the bill." H. Res. 249 has passed the House, authorizing the House Committee on Labor to study the question of old age pensions and to recommend legislation "establishing an old-age contributory pension system under the jurisdiction of the federal government, if the committee deems such legislation appropriate." *Bills Introduced:* S. 2526, introduced by Senator Long, Louisiana, proposes to pay an annuity to Frances Agramonte, the widow of Dr. Aristides Agramonte, a member of the Yellow Fever Commission. S. 2727, introduced by Senator Tydings, Maryland, proposes to provide medical services after retirement on annuity to former employees of the United States disabled by injuries sustained in the performance of their duties. S. 2753, introduced by Senator Walsh, Massachusetts, proposes to authorize the Reconstruction Finance Corporation to make loans to publicly and privately controlled colleges, universities and other institutions of higher learning. H. J. Res. 255, introduced by Representative Wiedeman, Michigan, proposes to create a commission to formulate a permanent national policy with respect to benefits for veterans and dependents of veterans. H. J. Res. 257, introduced by Representative O'Malley, Wisconsin, proposes to authorize the Secretary of the Interior to arrange with the several states for the education, medical attention, relief of distress, and social welfare of the Indians. H. R. 7492, introduced (by request) by Representative O'Connell, Rhode Island, proposes to confer additional benefits on veterans. It proposes to reestablish service connections, presumptive and otherwise, that were established prior to March 20, 1933, and that have since been severed. H. R. 7547, introduced by Representative Evans, California, proposes to continue the retirement pay received by emergency officers of the World War at the monthly rate that was being paid prior to March 20, 1933, if the disability for which the officer has been retired resulted from a disease or injury or aggravation of a preexisting disease or injury incurred in line of duty during such service. H. R. 7552, introduced by Representative Hope, Kansas, proposes to grant pensions and increases of pensions to certain soldiers, sailors and certain nurses of the war with Spain, the Philippine insurrection or the China relief expedition, and their widows and dependents. Pensions for contract nurses are provided for under existing law. No pension is provided under existing law or in the proposed bill for contract surgeons. H. R. 7556, introduced by Representative Hastings, Oklahoma, proposes to protect workers in their old age, by authorizing a federal appropriation to be allotted to the several states to aid them in giving assistance to aged persons. H. R. 7594, introduced by Representative Lewis, Maryland, proposes to provide for publicity of executive and administrative rules, regulations and orders. H. R. 7598, introduced by Representative Lundeen, Minnesota, proposes to provide for the establishment of unemployment and social insurance. It would authorize the Secretary of Labor to establish forms of social insurance for the purpose of paying workers and farmers for loss of wages because of part time work, sickness, accident, old age or maternity. H. R. 7647, introduced by Representative Marland, Oklahoma, proposes to confer additional benefits on veterans. It provides that any World War veteran who is in need of hospitalization or domiciliary care and unable to defray the necessary expenses therefor shall be furnished hospitalization or domiciliary care in any Veterans' Administration facility, irrespective of whether the disability, disease or defect was due to service. A statement by the veteran that he is unable to defray the necessary expenses of hospitalization or domiciliary care must be accepted by the Administrator of Veterans' Affairs as conclusive evidence of that fact. H. R. 7661, introduced by Representative Connolly, Pennsylvania, proposes to permit radium to be accepted in payment of war debts due from Belgium and to authorize the President to provide by rules and regulations for the donation of the radium so received to hospitals, medical clinics and medical research organizations in the United States. H. R. 7830, introduced by Representative Boileau, Wisconsin, proposes to confer additional benefits on veterans. It would, among other things, authorize the Administrator of Veterans' Affairs, so far as he shall find that existing government facilities permit, to furnish hospitalization and necessary traveling expenses incident to hospitalization to veterans, without regard to the nature or origin of their disabilities. H. R. 7854, introduced by Representative Fish, New York, proposes to authorize the Reconstruction Finance Corporation to make loans to religious and educational institutions. H. R. 7964, introduced by Representative Jenckes, Indiana, proposes to prevent the adulteration, misbranding and false advertising of food, drugs and cosmetics.

FOREIGN

Society News.—The seventh meeting of the German Society for Circulatory Research will be held in Bad Kissingen, April 16-17. Subjects to be treated are thrombosis and embolism, a theoretical lecture to be given by Prof. Ludwig Aschoff, Freiburg, and clinical lectures by Drs. Paul Morawitz, Leipzig, and Ludwig Nürnberger, Halle.

Centenary of Medical Society.—The Norwegian Medical Society, Oslo, observed its one hundredth anniversary, November 5, the *Journal-Lancet* reports. Prof. Peter F. Holst, president of the society, presided and proposed a toast to King Haakon, who, in his response, praised the society for its contributions to medical science. Thirty-one young physicians were given prizes ranging from $500 to $1,000 each, made available annually through a bequest of the late Dr. Malthe.

New Building at London Medical School.—King George V and Queen Mary officially opened new buildings for the medical school and pathologic institute at St. Mary's Hospital, London, December 12. The new buildings, which are continuous, are four stories high, with adequate accommodations for lecturers and laboratory work and in addition an underground garage, a swimming pool, a gymnasium and a squash rackets court. Dr. Charles M. Wilson is dean of the medical school, and Sir Almroth E. Wright, director of the pathologic institute. The buildings replaced were opened in 1852.

Personal.—Dr. J. Sanchez Covisa, former president of the College of Physicians of Madrid and of the Spanish Society of Dermatology and Syphilology, has been appointed dean of the medical faculty of Madrid to succeed the late Dr. Sebastian Recaséns.——Dr. Malcolm H. MacKeith, dean of the medical school of Oxford University, has been appointed dean of the new British Post-Graduate Medical School at Hammersmith. It is hoped that the school will be open to students the latter part of 1934.——Sir Leonard Rogers has retired as medical adviser to the secretary of state for India and president of the India Office Medical Board, having reached the age limit. He has been succeeded by Sir John W. D. Megaw, director general of the Indian Medical Service. Sir Leonard will continue his connection with the British Empire Leprosy Relief Association.——A surgeon, Mr. Godfrey Martin Huggins, has recently been chosen prime minister of Southern Rhodesia, Africa. A native of England, he has been in Rhodesia since 1910. He is consulting surgeon to the Salisbury Hospital.

Government Services

Food and Drug Seizures in January

The Federal Food and Drug Administration reports that seizure proceedings were instituted in January against 144 consignments of food and drugs and that twenty-three criminal prosecutions against offenders were recommended. Notification was received from federal courts of the termination of nineteen criminal prosecutions. Important seizures included candy containing alcohol. The law prohibiting the use of alcohol in candy has been in no way modified by the repeal of the prohibition law, the administration pointed out. Approximately 83,000 pounds of adulterated butter was seized. Among drug seizures of the month were bottles of "Sirop d'Anis Gauvin Compound," consigned by J. A. E. Gauvin, Lowell, Mass. This "compound," which was recommended for coughs, colds, bronchitis and other ailments, was found to contain morphine. Among the criminal actions terminated were a fine of $250 imposed on the Nestor Drug and Chemical Company, Chicago, and Julius Loeser for gross misbranding of a product which was called a cure for various maladies; a fine of $200 on the Giles Remedy Company and Sanford F. Giles for shipping in interstate commerce an adulterated and misbranded germicide, and one of $200 on the French Sardine Company, Terminal Island, Calif., which had shipped cases of partially decomposed tuna fish.

Statement About Medicinal Whisky

The Federal Food and Drug Administration issued a statement, February 16, calling attention to the requirements of the Food and Drug Act concerning medicinal whisky as differentiated from a product intended exclusively for beverage use. Under the law, drugs listed in the U. S. Pharmacopeia must conform to the definition in that authority and in the case of whisky the definition is more rigid than that for "straight whisky," recently issued by the Federal Alcohol Control Administration. Pharmacopeia whisky must be aged at least four years in charred wood containers and its alcoholic content must be not less than 47 per cent and not more than 53 per cent by volume of absolute alcohol. A product varying from these specifications may be sold, if the label carries a statement of the strength, quality and purity, but it must be marked "Whisky not U. S. P." Diluted alcohol, with or without artificial flavor and color, cannot be sold under the name "whisky," no matter how that name may be modified or qualified. Such a compound may be sold as a drug under a name other than whisky, if the name is not false or misleading in any particular. The announcement is not to be construed as modifying or changing the regulations of the Federal Alcohol Control Administration relative to the labeling of distilled spirits but shall be considered as an addition thereto, it was emphasized.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Jan. 27, 1934.

Complete Medical Socialism

The important fact that what is called national health insurance is so subsidized by the government and the employer that it is largely socialistic is generally overlooked in discussions, as well as the still more important fact that the evils of the system are due to this socialistic element. The principle of health insurance—that those who would be unable to pay the cost of medical attendance in the ordinary manner should provide for it by insurance—is of course sound and beyond criticism. The evils of the socialistic element, as disclosed in the working of the system, have frequently been described in these letters. An important question, therefore, for any country in which the introduction of national health insurance is contemplated is "How far will the scheme be socialistic?" Another question is "Supposing it is decided that a moderate subsidy from the state is necessary, as in other countries, what is the danger of the state, under political pressure, being compelled to subsidize more and more and make the scheme more socialistic? In England, constant demands are being made on the state for more and more, and the expenditure is much greater than was originally proposed. Moreover, there is the danger that under political pressure complete socialization of the medical profession may be brought about. Under the socialist government this danger was so great that the British Medical Association brought forward a scheme of almost complete socialization, not because it or the profession wanted it but as a lesser evil than what might have been imposed by the government. With the crushing defeat of that government, this scheme has disappeared. But the socialist party remains active and no one would be bold enough to say that it may not be in power some day. What may be expected from it is shown by the report in the *Lancet* of an address of Mr. Somerville Hastings, a laryngologist, who is a prominent member of the Socialist Medical Association, to the Lewisham Division of the British Medical Association.

Medical services, he said, should be free to every one, payment for them being made out of the taxes on a whole time salary basis. Money was always a difficulty with patients; if the physician visits frequently, he is thought to be running up a bill; if he tries to avoid such a charge by staying away, he is reproached with neglect. The taxpayer admitted to a hospital would, if able, pay the full cost of maintenance there, but the medical charges would be covered by the taxes. Mr. Hastings referred to the services which in recent years have been removed from the province of the general practitioner and provided by the community—preventive medicine, infectious diseases, lunacy, treatment of school children, much maternity work, tuberculosis, venereal diseases. Rheumatism, orthopedics and cancer might soon be added. At present the London County Council had no outpatient departments attached to its hospitals, but they were coming. There was too much time wasted by physicians in going round to see patients. Ill health cost the nation about $1,000,000,000. The preventive medical service cost $100,000,000 and the treatment services another $450,000,000. He doubted whether the state was getting value for its expenditure. Under his scheme there would be unit services for 50,000 people and most of the work would be done in a central clinic by a staff of twenty physicians working in conjunction with specialists. Hospitals and convalescent homes would be attached to the clinics. Private practice would still be allowed to physicians who did not come into the service,

but the aim would be to make this so attractive that rich and poor would flock to it.

Mr. Hastings assumes the continuance of the resources now provided by a society that still retains, in spite of socialistic adulteration, much of the efficiency of individualism. The complete socialization of the medical profession is not likely to be brought about without the complete socialization of everything else. If this ever should be achieved in this highly industrialized country the results, it is said on good authority, would be much more disastrous than have followed the destruction of the capitalist system in the comparatively backward Russia. Mr. Hastings might ask himself the question With what efficiency does the Russian government supply the medical needs of the masses, or the much more important needs of food, clothing and housing? The fatal flaw in all socialistic schemes is that they take no account of the loss of efficiency due to removal of the incentive of individual advantage.

The Removal of Tonsils

Whether the frequent removal of tonsils now practiced is justifiable is much disputed. The Ministry of Health a short time ago issued a report showing that the operation was too frequently performed. The Fellowship of Medicine arranged a debate on the motion "That operations for the removal of tonsils are too often performed without adequate cause." It was proposed by the laryngologist Mr. Herbert Tilley, who said that, for many of the subacute and chronic ailments of children up to the age of puberty and even adolescence, no treatment was so quickly restorative to normal and prolonged good health as removal of enlarged and diseased tonsils. But unfortunately this led to the belief that a disproportionate number of such maladies in children, and only less frequently in adults, are due to "septic tonsils," which are often removed without adequate examination of patients for other possible causes of their symptoms. It has been shown that the lymphoid nodules of the tonsils provide a constant supply of lymphocytes and phagocytes, which destroy noxious organisms that reach the tonsils through the mouth and nose. Probably in this "warfare" some general immunization is produced. Mr. Tilley said that it is not an uncommon experience to find in young patients who a year or so previously had their tonsils and adenoids removed that in the interval large patches of lymphoid tissue had been deposited on the posterior and lateral walls of the pharynx. Or the lower halves of the tonsillar fossae may become occupied by an upward growth of the adjacent lingual tonsils. This suggests an attempt of nature to compensate for the loss of the tonsils. Unfortunately the new deposits often lead to complaints of dryness and soreness of the throat and frequently an irritating cough—symptoms sometimes difficult to cure without cauterization.

Discussing What is a septic tonsil? Mr. Tilley said that in children bacterial flora can always be detected in the tonsillar crypts and from normal adults yellowish white plugs of débris can easily be expressed from one or more recesses in the tonsil, and the bacteriologist would report the presence of broken-down epithelial cells, lymphocytes, leukocytes, fibrinous material and probably pathogenic microbes. Such plugs are not an adequate cause for removal of tonsils. The "chronic septic tonsil," which may be a menace to the individual, he held to be one in which the natural protective barriers have broken down and pathogenic microbes, with their toxins, have entered the lymphatics of the tonsils and general circulation. The result is various degrees of inflammation of the tonsils with a history of recurrent attacks of acute tonsillitis and symptoms of mild general toxemia, often associated with local manifestations, such as myositis, neuritis, arthritis and symptoms suggesting cardiac infection. Clinically the most concise answer to the question is Hajek's dictum: "The most certain proof of a chronic tonsillitis is always the occurrence of repeated acute attacks." But, if such attacks are few and far between, the tonsils may equally be condemned on the following grounds: 1. The escape of pus from the crypts when pressure is applied to the tonsil. 2. An enlarged tonsillar gland behind the angle of the jaw, varying in size and sometimes tender. The neighboring anterior cervical glands may be in a similar condition. 3. A purplish red tinge limited to the anterior faucial pillar. This generally indicates streptococcic infection of the underlying tonsil and is frequently associated with arthritis. 4. Abnormal preponderance of leukocytes in material from the tonsillar crypts, frequently accompanied by general hyperemia of the pharyngeal and palatal mucosa. The size of the tonsil is no criterion of the degree of sepsis within it. A large tonsil may be far more harmless than another, which is small, retracted and fibrous. Once chronic infection has been established, the tonsil should be removed. In cases of chronic neuritis, arthritis, disordered heart action, iritis and rebellious skin diseases, striking successes have been achieved. But unfortunately there are also failures in what appear to be identical conditions, which points to the conclusion that the cause of the symptoms was not discovered.

Mr. Tilley drew attention finally to certain local and general factors, which, he has found, cause enlargement or inflammation of the tonsils. If such conditions were more freely recognized and treated, many tonsillectomies would be unnecessary. They are as follows: 1. Deficiency diseases, such as rickets, are commonly associated with enlarged tonsils. The same holds for deficiency of vitamin A, which frequently occurs in children brought up on excess of carbohydrates. 2. There is no need to remove slightly enlarged tonsils when the symptoms are typical of adenoid obstruction. Removal of the adenoids will frequently be followed by return of the tonsils to normal. 3. Dental sepsis is a frequent source of tonsillar congestion in children and sometimes in adults. 4. Many enlarged tonsils are due to infection of the nasal sinuses, particularly the antrum. This condition is far more common in children than is yet appreciated by laryngologists. It explains the large proportion of cases in which nasal discharge, cough and mild pyrexia continue after removal of tonsils and adenoids. 5. Nasopharyngeal symptoms, which include fulness of the tonsils, frequently accompany the advent of puberty. Removal of such tonsils would be reprehensible.

In seconding the motion, Dr. J. Alison Glover, medical officer of the Ministry of Health, gave statistics to show that tonsillectomy is excessively performed. More than half the most carefully nurtured children in this country are now subjected to it, whereas forty years ago none of their parents underwent it. While the incidence of tonsillitis is at least as high among the poor as among the rich, the children of the latter are operated on four times as often.

Measurement of Doses of X-Rays and Radium

Advances are being made at the National Physical Laboratory, Teddington, in methods of measuring doses of x-rays and radium. The work is under the charge of Dr. G. W. C. Kaye, superintendent of the physical department. Discussions between Teddington and the national laboratories of the United States and Germany are expected to lead to an international system of measurement at the congress to be held at Zurich next summer. Already measurement of the roentgen, the new x-ray unit, at the three laboratories, agree to within 0.5 per cent. The method depends on the power of the x-rays to make air a good conductor of electricity. The central part of the beam of x-rays is passed through a lead-screened chamber, and the rate at which electricity "leaks" from one side of the chamber to the other is measured. This method was worked out at Teddington and was used to standardize a less satisfactory

standard—the rate at which yellowish green pastilles are turned brown under the influence of radium. The full exploration of a beam of x-rays or radium will be possible by means of an instrument that need be no larger than a thumbnail but must first be compared with the standard recorder.

PARIS

(From Our Regular Correspondent)

Jan. 10, 1934.

Revision of the Premedical Course

Considerable stir was caused in the medical press by the recent announcement of the revised program of the premedical course, which must be completed by all candidates for admission to a French faculté de médecine. Heretofore these studies have been pursued in the facultés des sciences and comprised courses in physics, chemistry and natural history. It has frequently been alleged that these courses present too much theoretical knowledge that the physician has no use for in the practice of his profession. The facultés des sciences, it is true, gave these courses a character that was not exclusively medical, since they prepared the way for scientific careers other than that of medicine. Complaints of physicians have become increasingly loud in recent years. The physicians finally succeeded in inducing the superior council of public instruction to revise these courses. The new certificate, or diploma, will cover "physical, chemical and biologic sciences." The new courses reduced the time spent on zoology and botany, since the elements of these subjects that are useful to medicine are taught in the facultés de médecine. But it created general surprise when it was announced that the superior council (the majority of the members of which, by the way, are professors of pure science) had added, to make up for the trimming of the courses in zoology and botany, a complete program of higher mathematics, including trigonometry, logarithms, the calculation of curves, and exponential functions, which are of much less practical value for the mental training of the physician and are of a nature to discourage many prospective candidates. The medical profession has filed vigorous protests with the minister of public instruction and has demanded as preferable a return to the old system in vogue thirty years ago, when this preliminary instruction was given in the facultés de médecine.

A New Type of Sanitary Train

The Chemin-de-fer du Nord (Northern Railway Company) has put into service a special sanitary train to be used on its lines to facilitate radiologic examination of those of its agents who are employed in small localities, distant from hospital centers. Mr. Hirschberg has prepared a detailed description of the equipment of this modern train and has transmitted it, with the compliments of the company, to the Academy of Medicine. The train is composed of three special cars, one to serve for consultations and for roentgenologic examinations; a second car for the accommodation of the physician and the corps of assistants, and a third car that serves as a waiting room. This sanitary train, which functions with great success, has as its chief objective the application of prophylactic measures against tuberculosis, but it serves, at the same time, as an evacuation center and directs to suitable institutions all patients, tuberculous or otherwise, who seek a consultation. Mr. Calmette, shortly before his death, emphasized the great importance of this ambulant dispensary as an aid in combating tuberculosis. Sanitary trains of this, or similar, type might be used also for the preliminary examination of the wounded in time of war. Soon after this sanitary train was put into service, a train of a similar type but even more luxuriously equipped was constructed by the government-controlled railways. It is designed to travel over all the lines of the government railways and to visit more particularly the remote small localities in which medical organization is inadequate, to assist in giving clinical and roentgenologic examinations to the employees of the company.

A New Type of Municipal Hospital

The municipal council of Paris, wishing to take some adequate action in response to the protests launched by the physicians who complain that too many well-to-do patients are admitted to the hospitals of the Assistance publique, at reduced rates (although these institutions were established primarily for the indigent), without any additional remuneration of the heads of departments, who receive a fixed annual compensation from the Assistance publique, has decided to erect a large municipal hospital in the thirteenth arrondissement (ward), which will be, in fact, a clinic exploited by the city administration. The patients will occupy separate rooms and will be attended by the physician of their choice, whom they will pay directly for his services, while the city will collect the hospital charges exclusive of medical attendance. There will be no chief physician. All physicians were to be permitted to attend their clients in this institution; but, at the request of a member of the city council, it has been decided that only French physicians will be accepted, foreign physicians being excluded. No sooner was this plan announced than the private sanatoriums began to file protests, alleging that they would thus be deprived of the larger portion of their clientele, whereas they are under heavy expense and pay large income taxes, from which the municipal institution would doubtless be exempted. It is true, however, that these sanatoriums have very high tariff schedules, which is the chief reason why even well-to-do patients, during these times of stress, prefer to seek medical treatment in the hospitals, which are delighted to receive them, as their income is augmented by these promptly paying patients.

BERLIN

(From Our Regular Correspondent)

Jan. 8, 1934.

Interpretation of the Sterilization Law

The law for the prevention of offspring with serious pathologic hereditary tendencies (THE JOURNAL, Sept. 9, 1933, p. 866) went into effect January 1. The diseases involved are of course precisely enumerated in the law. According to the law, sterilization presupposes that the disease has been unequivocally diagnosed by a licensed physician, even though, owing to attempts at concealment, it may have become only temporarily apparent. A plea for sterilization shall not be entered if the subject with hereditary taints, by reason of advanced age or otherwise, is incapable of reproduction, or if the health officer having jurisdiction has certified that the intervention would constitute a peril for the life of the person or if, being in need of institutional care, he is retained permanently in an institution. The sterilization shall not be performed before completion of the tenth year of life. Sterilization is effected, without removal of the testes or ovaries, by making the spermatic cords or the fallopian tubes impermeable or severing them. The operation is to be done in federal or communal hospitals or sanatoriums or in other institutions only in case they are willing to accept such patients. An absolute guaranty must be given that the intervention will be performed by a physician who has had surgical training. If a licensed physician, through his practice, becomes acquainted with a person who is affected with a hereditary disease or grave alcoholism, he must notify, without delay, the health officer having jurisdiction. The same obligation rests on other persons who are concerned with the examination, therapeutic management or counseling of patients. If the official physician regards sterili-

zation as advisable, he shall endeavor to induce the patient in question, or his legal representative, to file a petition to that effect. If this is not done, he must file a petition himself.

For this purpose a questionnaire has been drawn up that applies particularly to persons with hereditary blood taints. For weakminded persons a questionnaire comprising an intelligence test has been prepared. If the court approves the sterilization, the official physician shall inform in writing the subject to be sterilized and shall demand that he (or she) submit to the intervention within two weeks. The notice should contain the names of the institutions to which application may be made. If the subject to be operated on does not file a petition of his own accord, he should be informed that the intervention will be undertaken against his will. The court shall countermand the order for sterilization if testimony given by the official physician having jurisdiction is to the effect that sterilization would imperil the life of the subject. If the person to be sterilized secures, at his expense, admission to a "closed" institution that will furnish a guaranty that reproduction will not occur, the court will, at his request, order that the intervention be held in abeyance as long as the person remains in the designated institution. This provision, which leaves open a way in which sterilization can be avoided (although at the expense of the subject's personal freedom), creates a distinction between rich and poor, to which the daily press has called attention in the hope that some way may be devised of furnishing the necessary financial aid to persons of limited means. After expiration of the delay set, the intervention shall be carried out with the aid of the police and the application of direct force, if necessary. In the case of juveniles, the intervention may not be carried out with application of direct force before completion of the fourteenth year. Neglect of the duty of notification renders a person subject to punishment.

For the execution of the sterilization law, eugenics courts (and superior courts) have been established throughout the reich. Attention is given first to patients who are already under medical supervision; that is, who are in institutions or who are receiving protracted treatment. It will then be the duty of the specially appointed eugenics boards to ferret out the remaining persons with serious hereditary and transmissible defects. According to estimates, the number of persons with hereditary disorders who are to be sterilized within a short time amounts to about 400,000. The sterilization law lists nine diseases as hereditary, with numbers somewhat as follows: congenital weakmindedness, 200,000; schizophrenia, 80,000; manic-depressive insanity, 20,000; epilepsy, 60,000; chorea minor, 600; hereditary blindness, 4,000; hereditary deafness, 16,000; grave bodily malformation, 20,000; hereditary alcoholism, 10,000; a total of 410,600. This number is composed about equally of men and women. It is evident that not all the persons concerned can be subjected to the sterilizing operation within a few weeks. The plan is to treat the more urgent cases first.

An estimate of the total expense must consider that the comparatively simple operation on a man costs about 20 marks ($7.60). The total expenditure for the sterilization of 200,000 men would thus amount to about 4,000,000 marks ($1,520,000). The intervention as applied to women is more complicated, and the charges may be estimated at 50 marks ($19). The total expense involved in the sterilization of 200,000 women would accordingly range around 10,000,000 marks ($3,800,000). Over against this expenditure of 14,000,000 marks ($5,320,000), for the first few years, may be placed the economies effected by the prevention of offspring with serious hereditary taints. According to a recent estimate, every patient with a hereditary disorder entails an average annual expense to the commune that provides for his care in an institution of 1,482 marks ($563). On the basis of a low estimate, the communes of the whole reich would expend more than 170,000,000 marks ($64,600,000) for the mental patients alone. In addition, a large part of the offspring with hereditary disorders must be educated in special schools, the annual expenditures for which throughout the reich amount to 40,000,000 marks ($15,200,000). Berlin, for example, pays for the 8,000 pupils in its special schools 2,500,000 marks ($950,000) more than for the same number of pupils in the *volksschulen*. The direct expenditures for patients with hereditary disorders, as reported by the reich, the länder and the communes, amount to at least the annual sum of 350,000,000 marks ($133,000,000). Director Burgdörfer, of the federal bureau of statistics, includes in the financial burdens entailed by patients with hereditary disorders also the sums expended by the welfare agencies, the churches and private parties, and this places the annual disbursement that the public has to meet for the support of patients with hereditary disorders, and of asocial and criminal elements, at approximately 1,000,000,000 marks, or $380,000,000.

It is estimated that, after several decades, hundreds of millions of marks will be saved each year as a result of the reduction in the expenditures for patients with hereditary diseases. The funds for the care of such patients are furnished chiefly by the social insurance system; that is, by the krankenkassen. Uninsured persons are taken care of generally by welfare aid societies. A written report must be made to the health authorities within three days after the intervention.

THE CASTRATION OF CRIMINALS

The law pertaining to the castration of criminals likewise went into effect, January 1. Some of the provisions have a medical interest. As measures of safety and moral regeneration, any of the following decisions may be reached: internment in a sanatorium, a drink cure institution or an institution for withdrawal treatment; sterilization of dangerous perpetrators of crimes against good morals. Hardened criminals who are hopeless recidivists may be kept in custody for an indefinite period or for the duration of their lives. Dangerous criminals who commit sex crimes can be sterilized after age 21 if they have been previously sentenced for a corresponding crime and a prison sentence of at least six months was imposed. Consideration of all the facts in the case must show that the subject is a dangerous violator of moral laws as pertaining to sex. Evidence of a sentence imposed in a foreign country will be accepted as having the same value as a sentence imposed in Germany.

Any person who, through intoxicants, including narcotics, allows himself to get into such an intoxicated state as to be no longer accountable for his acts, and while in such a condition commits a punishable offense, may be given a prison sentence up to two years. Any person who procures, without permission, for an inmate of an institution for withdrawal treatment, alcohol in any form, or other intoxicants, may be given a prison sentence up to three months.

Congress of Internal Medicine

This year's session of the Deutsche Gesellschaft für Innere Medizin will be held in Wiesbaden, April 9-12. The main topics on the program are: (1) "The Present-Day Theory of Hereditary Transmission in Its Application to Man," chief speaker, Eugen Fischer, Berlin; (2) "General Pathology of Hereditary Transmission," chief speaker, Freiherr von Verschuer, Berlin; (3) "Special Pathology of Hereditary Transmission of Internal and Nervous Diseases," chief speaker, Otto Naegeli, Zurich; (4) "Significance and Scope of the Localization Principle in the Nervous System," chief speaker, Otfried Foerster, Breslau; (5) "Physiology and Chemistry of the Sex Hormones," chief speaker, Adolf Butenandt, Danzig; (6) "Normal and Pathologic Functioning of the Ovaries," chief speaker, Robert Schroeder, Kiel. The chairman is Schittenhelm of Kiel, who directed also the previous congress, in place of Lichtwitz.

VIENNA

(From Our Regular Correspondent)

Dec. 12, 1933.

The Tannic Acid Treatment of Burns

Since the tannic acid treatment of burns became known here, a large number of physicians, particularly in the "accident hospitals," have adopted this method. In order to bring the method to the attention of more physicians, a number of lectures and demonstrations on the subject were held at a recent session of the Vienna Medical Society. It was stressed that the chief advantage of this method holds not so much for adults as for the burns of children, whose lives are thereby saved; for ordinarily the prognosis in the case of children with burns is much more unfavorable than with adults. The new method reduces the pain and dispenses with bandages and the use of the protracted water bath. In combination with blood transfusion and injections of sodium thiosulphate, the results have been excellent. Of all the methods recommended for the use of tannic acid, the following has proved to be the most effective: Moistening or spraying of the burned portions of the body, every quarter of an hour, with a 2.5 per cent solution, over a period of from twelve to eighteen hours. As soon as the crust has formed, the patient needs little further care. The crude tannic acid is superior to the purified, and the best effects are secured if the solution is applied at a temperature of 30 C. (86 F.). The stay in the hospital is reduced at least 20 per cent. Scar formation and contractures are much more rare and more pliable than formerly. The sooner the tannic acid is applied, the better the results. The mortality has been reduced from 13.5 per cent to 2.4 per cent, whereas with the trinitrophenol therapy formerly employed the mortality ranged from 11 to 40 per cent.

Roentgenologic Treatment of Metastatic Cancer of Lung

Dr. Borak demonstrated before the Gesellschaft der Aerzte several cases of metastatic tumors of the lung, which are now regarded as virtually healed. A woman aged 61, who, seven years previously, had a solid cancer of the right mamma, had a radical operation, which was followed by irradiation. The operative area is thus far free from recurrences. In 1930, however, a metastasis developed in the region of the left hilus glands, compressed the bronchus and esophagus and pressed on the pneumogastric nerve, which condition was associated with upper displacement of the diaphragm and atelectasis of the lung. The symptoms were cough, fever, blood-stained sputum and loss of weight. The patient received in September, October and December 1930 roentgen irradiations equivalent to 2,400 roentgens for each series, distributed over the breast and back. The pressure symptoms disappeared gradually, and today there is visible in the hilus only a strip of shadow at the former site of the tumor. The subjective condition of the patient is excellent, while normal body weight and full working capacity have been restored. This result has persisted for three years. Dr. Borak exhibited roentgenograms of several other cases: one case with a solitary metastasis dating back to the year 1929, and other cases with multiple foci in both lungs going back to 1930. These cases were metastases following cancer of the breast and belonged to the type of a solid cancer. The observations of other roentgenologists go to show that this type, in contrast with adenocarcinoma, reacts well to roentgen rays. Much heavier doses must, however, be employed than was formerly the custom and is still the custom, to a certain extent.

Albin Haberda

Prof. Albin Haberda, the distinguished medicolegalist, died, recently, after a long illness, at the age of 66. Haberda was a pupil of Eduard Hofmann. While a student he was appointed an assistant in the institute, an excellent proof of his unusual ability. He was then assigned to the Klinik für Chirurgie and later to the Klinik für Gynäkologie. After the death of Professor Kolisko, who, after Hofmann's demise, had become director of the Institute of Legal Medicine, Haberda took over, as a young man, this important post, and established a school of legal medicine, which was attended by physicians and jurists from all parts of the world. His originality and wit were proverbial, while his knowledge was profound. His classic Textbook of Legal Medicine, which he kept up to date, became a standard work, a mine of information for every person interested in legal medicine. The journal *Beiträge zur gerichtlichen Medizin* was founded and edited by Haberda, and in it he published many extremely valuable articles from his own pen. Many of Professor Haberda's pupils are serving today as forensic experts in Austria and in foreign countries. Particularly well known is his critical attitude toward the problem of artificial (criminal) abortion, for which he rejected social and eugenic indications. During his last illness, of two years' duration, his pupil Professor Werkgartner took charge of his work and is likely to be appointed his successor. Haberda's death is a severe loss for the faculty of the University of Vienna. He was one of the last of the "old guard," which, before the war, had made Vienna the Mecca of European students.

JAPAN

(From Our Regular Correspondent)

Dec. 30, 1933.

The Increase in the Number of Physicians

The total number of physicians in Japan in 1932 amounted to 50,068, according to a report made by the home department, which shows an increase of 1,969 over the number of the previous year. Of these physicians the practitioners number 46,029, or 1,140 more than in 1931; the number in every 10,000 of population is 6.94. Those who work in cities number 23,736, those in towns 10,204, and those in villages 12,089.

The number of dentists is reported to be 17,164; in 1931 it was 15,988. The number of midwives was 54,655 (in 1931, 52,537). The number of names removed from the medical register for various reasons in 1931 was 1,014. In the last ten years, 968 practitioners each year have been removed from the register. In the present school year from last April to March 1934, the graduates of medical colleges, universities and other schools will amount to 3,115. The rapid increase of the population may more or less justify the increase of physicians; nevertheless, this is the age of the flood of doctors. The present system of medical education here is a point of issue on every side, for this system when founded about sixty years ago was based on the German system, and there has been little change. Four years of medical studies are said to be too few for those who want to practice soon after graduation, but to lengthen them the preparatory course must be shortened.

Three Professors Dismissed for Selling Degrees

The following disgraceful incident shows how hard it is for practitioners to succeed in these hard times. In this country the title of Doctor of Medicine is almost a prerequisite for a practitioner to have a large practice. This title is given when a thesis for the doctorate is approved by the college or university staff. Three professors of the Nagasaki Medical College, which is under government management, were accused by the procurators of the Nagasaki local court of selling through bribery the scholastic degree of doctor of medicine. The eight practitioners who bought the degrees were also accused. This caused a sensation all over the country, as the occurrence was the first of its kind in Japanese scholastic circles. All the students of that medical college, although forbidden to assemble

in protest against the scandal, managed to voice a united refusal to undergo examination by the present teaching staff. On hearing the indignant demands of the students, the entire teaching staff decided to resign, including the president, sixteen professors and nine assistant professors. The three professors, one of whom is reported to be the most famous gynecologist in this country, were taken in custody; while the others are reported to have nothing to do with the scandal, they tendered their resignations. The education office, however, rejected the joint resignation of the president, sixteen professors and nine assistant professors. The accused professors were dismissed from their posts.

The Society of University Professors of Japan expressed deep resentment, as the incident was not in keeping with the dignity of education.

The exposure of the scandal may be attributed to the friction among the professors, who are divided into two cliques, one group being made up of those who graduated from the Kyoto Medical University and the other the Tokyo University group. Cliques in medical schools here have long been the cause of trouble not only in this ancient college but in many other schools of medicine. Even the education office is at a loss to know what to do with this problem and so has left it unsolved.

The Rockefeller Public Health School in Japan

The Rockefeller Foundation in 1930 proposed the donation of a large sum of money to establish an institution to train medical workers and experts. The proposal, however, seemed to be abandoned in 1931 when the foundation announced the discontinuance of new enterprises. But recently it was decided to go ahead, as it was planned at first. In the cabinet council, December 21, the acceptance of the donation was recognized by the government. The new institution is expected to be completed in two years. According to the announcement by the sanitary bureau of the home office, the new institution will train and teach those who want to be public health workers, while medical graduates will be given postgraduate training. As there has not been such an institution in Japan, social medical problems have not been investigated. Those problems, heretofore untouched, will immediately be taken up. Attached to this institution in the local towns and villages will be the "health house," where those who graduate from the central institution will work for a while. The expense of maintenance will be contributed for three years by the foundation, and then the local houses will be put under the management of the local government.

The Practitioners and the Government

What most worries the practitioners in these hard times, says the *Medical Report*, is what will become of them if this condition endures. The government seems obliged to neglect the medical profession when questions of social policy arise. The government tries at every opportunity to require cheaper medical service for the middle and lower classes by encouraging the clinics and by the extension of health insurance. The national plan of health insurance, when completed, will include more than 20,000,000 people in the middle and lower classes. On the other hand, in the schools, tuberculosis prevention work is much discussed, as there are more than 250,000 tuberculous children in the primary schools. Physicians should immediately be attached to every school, the education office declares. The total number of the primary schools amounted to 25,626 in 1932, and if one physician is attached to two schools, about 12,000 physicians would do school work exclusively. If the national health insurance succeeds, it will come to pass that many will be government physicians and work on a salary. There is also a tendency to increase government work in disease prevention. Almost all physicians will be in the employ of the government, and the character of medical practice, which has been individualistic for centuries, will undergo a change.

Asylums for Opium Addicts

Two large asylums for opium addicts have been built in the capital of Manchukuo, in which republic the number of addicts is estimated roughly at 1,800,000. Dr. Ito, vice president of the new asylum in the capital, says that the government is going to eradicate opium poisoning completely in half a century. The new asylum in Mukden will soon be enlarged to accommodate more than 2,000 cases a month. It will not only aim to cure the cases of poisoning but at the same time to cure addicts of the habit of using opium while kept there; some will be initiated into manual home work and their steady employment is expected to help them to break the habit. This asylum is therefore a hospital, on the one hand, and an employment office, on the other. Much hardship is expected to be encountered, for the habit of using opium in this country has been customary for a long time.

Postpone Adoption of Metric System

The establishment of the metric system as the legal system of weights and measures for Japan will be postponed for five years from next July under a decision of the ministry of commerce and industry. The sole reason for the postponement is that the people in general are not yet well enough acquainted with the system, although it was ten years ago that it was officially stated that the new system would be the legal system for this country. It is said that the new system will cost a great deal in changing the records of land ownership and taxation, and some architects say that without the old system great inconvenience will occur in their work. Japanese physicians have used the metric system for a long time.

BELGIUM

(From Our Regular Correspondent)

Dec. 27, 1933.

International Association of Preventive Pediatrics

The third conference of the International Association of Preventive Pediatrics, which constitutes a section of the Union internationale de secours aux enfants, was held in Luxemburg. Two topics were discussed at the session, the first being "Prophylaxis in Infantile Paralysis." Drs. Rohmer and Willemin Cloc considered the factors that may serve as a basis for the establishment of prophylaxis. The nasopharyngeal mucosa and the salivary glands are both a port of entry and a route of elimination for the virus. In all probability, transmission does not occur through human contacts. This assumption is supported by numerous clinical and epidemiologic facts. Transmission by water (the Kling theory) is not impossible. The duration of the incubation appears to range between ten and fourteen days. Contagiousness does not usually exceed three weeks from the onset of the disease. The morbidity is low, as most persons become immunized or have already been immunized during a previous epidemic. Thus, 90 per cent of the urban population and 50 per cent of the rural inhabitants are found to be immunized. Eighty per cent of the cases observed in a region in which the infection is endemic concern children under 6 years of age who have had no opportunity to become immunized.

Dr. Wallgren distinguishes, among the prophylactic measures, those that aim to prevent infection (prophylaxis of exposure) and those designed to prevent persons exposed from coming down with the disease (prophylaxis of predisposition). The prophylaxis of exposure has two chief tasks: (1) to check the dissemination of the infectious agent and (2) to prevent its infec-

tive action on man. Point 1 presupposes isolation of patients and neutralization of urine and fecal matter, the avoidance as far as possible of all contacts with strangers, and the closing of schools and playhouses. Point 2 presupposes avoidance of contaminated drinking water and food, inspection of all food products, avoidance of contacts with patients, and observance of strict hygiene and scrupulous cleanliness. Resistance to the disease depends on (1) certain specific factors of biologic immunity, and (2) certain specific constitutional and physiologic factors.

The Brussels Center of Puericulture

The Duchess of Brabant, who was welcomed by Count Carton de Wiart minister of health and social insurance, opened formally the Pediatric Clinic of the Center of Puericulture. Constructed in accordance with modern ideas, the Pediatric Clinic has accommodations for 110 infants. The rooms, separated by glass partitions, face a covered terrace and contain about everything that a child needs. The basement has a special kitchen, which comprises three rooms. In the first room the infants' drinking bottles are washed, whence they pass into the middle room, the kitchen proper, where they are filled and sterilized. Thence they are taken to the refrigeration room, whence they are distributed to the various floors.

The Center of Puericulture serves as a consultation center on infant care, to hospitalize sick, premature and weakly infants, to supply a home for abandoned mothers and infants, to train mothers in the care of children, and to create a training school for nurses. The institute will be also a diagnostic center for children.

Prevention of Specific Acute Disorders of Infants

In his discussion of the second main topic "Prophylaxis of Specific Acute Disorders of Infants," Dr. Rott emphasized that prophylactic measures should be based on a clinical and sociological inquiry into conditions favorable to the development of the disease.

Dr. Frontali said that prophylaxis covers the following points: (1) mechanical protection of the child against the source of infection; isolation of the healthy child from infected persons; open individual cubicles in hospitals, which are recommended; (2) habituation to climatic conditions; life in the open air; (3) a balanced diet; (4) vaccinoprophylaxis, with which the speaker had secured encouraging results; (5) medicinal prophylaxis: (*a*) general; (*b*) local: nasal instillations of disinfectants.

Marriages

WILBORN E. UPCHURCH, Atlanta, Ga., to Miss Katherine Crowell Middlebrooks of Haddock, Nov. 18, 1933.

WILLIAM A. RUNKLE, Memphis, Tenn., to Miss Louise Evelyn Duke of Grenada, Miss., January 8.

MILNER CROCKER MADDREY, New York, to Miss Sara Jean Willis of Charlotte, N. C., January 19.

ROY C. FRAVEL, Woodstock, Va., to Miss Adelaide Rebecca Smith of Clifton Forge, Dec. 24, 1933.

CHARLES S. VENABLE to Mrs. Eleanor Herff Johnson, both of San Antonio, Texas, Dec. 16, 1933.

WILLIAM LLOYD EASTLACK to Miss Muriel E. Reynolds, both of South Boston, Va., recently.

FRANK MERRILL WATTLES to Miss Charlotte Olivia Grimm, both of Palatka, Fla., January 11.

EDWIN F. CAVE, Boston, to Miss Louise Fessenden of Chestnut Hill, Mass., Dec. 9, 1933.

SIDNEY TERRELL PARKERSON, Unadilla, Ga., to Miss Mary Raby of Vienna, January 3.

JAMES STEWART MILLS to Miss Margaret Gaines Grace, both of Cincinnati, January 6.

Deaths

Robert Wilson Shufeldt ⊕ Major, U. S. Army, retired, Washington, D. C.; Columbian University Medical Department, Washington, 1876; Civil War veteran; appointed assistant surgeon in 1876; retired as a captain for disability in line of duty in 1891; promoted major, retired in 1904; placed on active duty from 1918 to 1919; surgeon with Generals Merritt, Crook and Sheridan in frontier Indian wars, 1876-1881; curator of the Army Medical Museum, in 1882; honorary curator at the Smithsonian Institute, under Baird, and in 1895; delegate to the British Association for the Advancement of Science from Royal Australasian Ornithologists Union in Melbourne in 1914; author of numerous articles on the study of ornithology, anthropology and geology; aged 83; died, January 21, of arteriosclerosis.

J. M. Arthur Rousseau, Quebec, Que., Canada; Laval University Faculty of Medicine, Quebec, 1895; dean and professor of clinical medicine at his alma mater; in 1920 president of the Association of French Speaking Physicians of North America; past president of the Canadian Tuberculosis Association; officer of the Legion d'honneur; on the staff of the Hôpital du Saint Sacrement; aged 62; died, January 14, of pneumonia.

Oscar Amadeus Hansen ⊕ Major, M. C., U. S. Army, Fort Leavenworth, Kan.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1906; University of Illinois College of Medicine, Chicago, 1907; served during the World War; entered the medical corps of the regular army in 1920 as a captain and in 1929 was made a major; aged 56; died, January 31, of arsenic poisoning.

Espy Kerl Schurtz ⊕ Waterloo, Ind.; Indiana Medical College, School of Medicine of Purdue University, Indianapolis, 1907; served during the World War; aged 54; on the staff of the U. S. Veterans' Hospital, Jefferson Barracks, Mo., where he died, in January, following an operation for strangulated hernia and diabetes mellitus.

Zanvill David Klopper, Chicago; Jenner Medical College, Chicago, 1908; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1910; formerly coroner's physician; on the staff of St. Elizabeth's Hospital; aged 62; died, February 3, of cerebral hemorrhage.

Henry Everett Monroe ⊕ Shelbyville, Ill.; Medical College of Ohio, Cincinnati, 1899; past president of the Shelby County Medical Society; served during the World War; aged 58; on the staff of the Shelby County Memorial Hospital, where he died, January 30, of acute dilatation of the heart.

George Coke Williams, Anniston, Ala. (licensed by Calhoun County board of medical examiners of Alabama in 1881); member of the Medical Association of the State of Alabama; formerly member of the state legislature; aged 82; died, January 25, of hypertrophy of the prostate and uremia.

Guy William Rubush, Indianapolis; Indiana University School of Medicine, Indianapolis, 1913; member of the Indiana State Medical Association; aged 53; on the staffs of the Methodist Hospital, City Hospital and St. Francis Hospital, where he died, January 13, of pneumonia.

Abner Orimel Shaw, Portland, Maine; College of Physicians and Surgeons in the City of New York, Medical Department of Columbia College, New York, 1863; member of the Maine Medical Association; Civil War veteran; aged 96; died, January 27, of pneumonia.

Walter Oling Parrish, Rector, Ark.; University of Nashville (Tenn.) Medical Department, 1898; member of the Arkansas Medical Society; past president of the Clay County Medical Society; served during the World War; aged 58; died, Dec. 30, 1933.

Arthur Albert Schmidt ⊕ Postville, Iowa; Keokuk Medical College, 1893; past president of the Allamakee County Medical Society; health officer of Postville; aged 62; medical director of the Postville Hospital where he died, January 22, of septicemia.

Frederick Goodman Sanford ⊕ Jersey Shore, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1901; medical director of a hospital bearing his name; aged 55; died, January 28, in the Johns Hopkins Hospital, Baltimore, of amebic dysentery.

Herbert P. Byers, Melita, Manit., Canada; Manitoba Medical College, Winnipeg, 1890; for many years health officer of Melita and the municipality of Arthur, coroner and medical

officer to the Canadian Pacific Railway; aged 73; died, Nov. 24, 1933.

Isaac Charles Munson ⊕ Avoca, N. Y.; University of Vermont College of Medicine, Burlington, 1897; health officer of the consolidated health district of Avoca, Steuben County; aged 58; died, January 4, in the Bath (N. Y.) Hospital.

Joseph Clarence Tappan, Derry, N. H.; Columbian University Medical Department, Washington, D. C., 1899; member of the New Hampshire Medical Society; aged 62; died, Dec. 19, 1933, of injuries received in an automobile accident.

Grace Greenwood Tinney, Norton, Kan.; Woman's Medical College, Kansas City, 1902; member of the Kansas Medical Society; on the staff of the Laird Memorial Hospital; aged 55; died, Dec. 19, 1933, of cerebral hemorrhage.

Joseph Russell Taylor, Harrisburg, Pa.; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1919; served during the World War; aged 39; died, January 7, of heart disease.

Alexander Waters Ransley, Spring Mill, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1875; formerly on the staff of the Philadelphia General Hospital; aged 82; died, January 28, of pneumonia.

Ferdinand N. Hunt, Fairmont, Minn.; Missouri Medical College, St. Louis, 1884; an Affiliate Fellow of the American Medical Association; aged 77; died, February 1, of injuries received from a fall on an icy sidewalk.

Claude Mattingly ⊕ Austin, Texas; University of Texas School of Medicine, Galveston, 1926; served during the World War; aged 38; was found dead, February 1, of narcotic poisoning, presumably self administered.

Jefferson D. Wilcox, Willacoochee, Ga.; Southern Medical College, Atlanta, 1882; veteran of the Spanish-American War; formerly member of the state legislature; aged 77; died, Dec. 21, 1933, of heart disease.

Antoninus S. Sorgi, Stamford, Conn.; Royal University of Palermo Faculty of Medicine and Surgery, Palermo, Italy, 1892; aged 66; died, January 18, in the Stamford Hospital, of carcinoma of the sigmoid.

Olin E. Newton, Fayette, Ala.; Birmingham Medical College, 1911; member of the Medical Association of the State of Alabama; aged 52; died, Dec. 12, 1933, in the Walker County Hospital, Jasper.

John Jellison Moffett ⊕ Greenville, Ohio; University of Colorado School of Medicine, Denver, 1912; on the staff of the Greenville Hospital; aged 47; died, January 17, of a self-inflicted bullet wound.

Walter Smith Putnam, Millersburg, Ohio; Cleveland College of Physicians and Surgeons, Medical Department of the University of Wooster, 1887; aged 70; died, January 5, of cerebral hemorrhage.

Isaac Kaufman, Chicago; Chicago College of Medicine and Surgery, 1915; aged 51; on the staff of the Woodlawn Hospital, where he died, February 6, following an operation for gallbladder disease.

Hiram Burton Duncan, San Francisco; St. Louis University School of Medicine, 1912; aged 48; died, Dec. 19, 1933, of shock and hemorrhage, following fracture of skull from a gunshot wound.

Julia Tolman, Arlington, Mass.; University of Michigan Medical School, Ann Arbor, 1884; member of the Massachusetts Medical Society; aged 80; died, January 1, of cerebral hemorrhage.

Thomas Verner O'Brien Wilson, Toronto, Ont., Canada; University of Toronto Faculty of Medicine, 1932; intern, Hospital for Sick Children; aged 26; died, Nov. 27, 1933, of pneumonia.

Luman Birch Swaggart, Denver; University of Colorado School of Medicine, Denver, 1913; member of the Colorado State Medical Society; aged 57; died, January 14, of angina pectoris.

George Lafayette Neal, Garden City, Kan.; University of the City of New York Medical Department, 1858; Civil War veteran; aged 98; died, January 19, of chronic nephritis and uremia.

Charles Edwin Orelup, Lawrence, Kan.; Kentucky School of Medicine, Louisville, 1892; aged 74; died, January 22, at the State Sanatorium, Norton, of chronic pulmonary tuberculosis.

George Whitefield Meux, Stanton, Tenn.; Vanderbilt University School of Medicine, Nashville, 1906; president of the school board; aged 51; died, January 24, of heart disease.

Socrates James Paul, Springfield, Mass.; Tufts College Medical School, Boston, 1913; aged 54; died, January 9, in the Health Department Hospital, of pulmonary tuberculosis.

Frederic Xenophas Morier, Montreal, Que., Canada; School of Medicine and Surgery of Montreal, 1920; served during the World War; aged 45; died, in October, 1933.

Harold Dwyer Tobin, Chateaugay, N. Y.; Albany (N. Y.) Medical College, 1913; aged 44; died, Dec. 24, 1933, in the Alice Hyde Memorial Hospital, Malone, of pneumonia.

Thomas Alsop, Richmond, Va.; University of Virginia Department of Medicine, Charlottesville, 1895; aged 61; died, January 15, in Sydney, Australia, of bronchopneumonia.

Alfred George Wilding ⊕ Malone, N. Y.; Albany Medical College, 1892; on the staff of the Alice Hyde Memorial Hospital; aged 70; died, January 22, of heart disease.

Charles Wakeford, Norris City, Ill.; Missouri Medical College, St. Louis, 1897; served during the World War; aged 57; died, January 17, of septicemia and erysipelas.

Andrew Jackson Gilkinson, Osakis, Minn.; University of Minnesota Medical School, Minneapolis, 1893; aged 70; died, Dec. 26, 1933, of diabetes mellitus and septicemia.

Isaiah S. Wesley, Liberty, Ky.; University of Louisville School of Medicine, 1889; formerly county health officer; aged 67; died suddenly, February 1, of heart disease.

Morgan Morgan, Martinsburg, W. Va.; Bellevue Hospital Medical College, New York, 1879; aged 75; died, January 2, in the City Hospital, of chronic myocarditis.

Willard Henry Richardson, Sodus, N. Y.; Syracuse University College of Medicine, 1896; aged 73; died, Dec. 14, 1933, in the Myers Hospital, of embolism.

Walter Davis Shurtleff, Plymouth, Mass.; Howard University School of Medicine, Washington, D. C., 1897; aged 58; died, Dec. 24, 1933, of heart disease.

Russell H. Johnson, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1871; aged 86; died, January 28, of hypostatic pneumonia.

Robert A. Thornton, Joplin, Mo.; Beaumont Hospital Medical College, St. Louis, 1893; aged 66; died, Dec. 11, 1933, in Colorado Springs, Colo.

William Thomas Watson, Lexington, Tenn.; University of Tennessee Medical Department, Nashville, 1877; aged 81; died, January 20, of pneumonia.

Sampson Stratford Sargent, Tampa, Fla.; Eclectic Medical Institute, Cincinnati, 1870; aged 85; died, January 8, of cerebral softening and uremia.

Elbert Lee Addington, Coeburn, Va.; Kentucky University Medical Department, Louisville, 1906; aged 56; died, January 13, of heart disease.

William Willshire Sloan, French Lick, Ind.; Hospital College of Medicine, Louisville, Ky., 1898; aged 61; died, January 15, of heart disease.

Albert H. Sears, Anderson, Ind.; Hahnemann Medical College and Hospital, Chicago, 1890; aged 73; died, Dec. 16, 1933, of carcinoma of the sigmoid.

Wilbur Robinson ⊕ Sunman, Ind.; Medical College of Ohio, Cincinnati, 1906; aged 57; died, January 5, of chronic nephritis and hypertension.

James Bryant Tichenor, Sims, Ind.; University of Louisville (Ky.) School of Medicine, 1893; aged 73; died, Dec. 23, 1933, of arteriosclerosis.

Frank Almon Russell, Kent, Ohio; Cleveland University of Medicine and Surgery, 1896; aged 59; died, Dec. 25, 1933, of cerebral hemorrhage.

Anatole O. Comire, St. Francois du Lac, Que., Canada; School of Medicine and Surgery of Montreal, 1880; aged 77; died, Oct. 26, 1933.

William Joseph Bowes, Chicago; University of Colorado School of Medicine, Denver, 1919; aged 40; died, February 1, of diabetes mellitus.

Peter R. Robinson, Ennis, Texas; Meharry Medical College, Nashville, Tenn., 1895; aged 68; died, Dec. 28, 1933, of cerebral embolism.

Malcolm McInnis Tatum, Mount Olive, N. C.; Medical College of Virginia, Richmond, 1877; aged 86; died, Dec. 8, 1933, of senility.

Sumter B. Battey, New York; University of Georgia Medical Department, Augusta, 1884; aged 72; died, February 2, of heart disease.

Correspondence

VITAMIN H

To the Editor:—In a previous communication (THE JOURNAL, Nov. 4, 1933, p. 1499), I inadvertently mentioned Kuhn's reference to a "vitamin H" as appearing in the *Berichte der deutschen chemischen Gesellschaft* **66** B, 1933, page 1934, instead of page 317 of the same volume, and erroneously interpreted H as having been considered an antipellagra factor. A more recent review by György and associates (*Klin. Wchnschr.* **12**: 1241, 1933) clarifies somewhat the relation between the skin changes and the factors G and H: The authors do not agree that the early skin manifestations in G-avitaminosis in rats compare throughout with similar symptoms in human pellagra. But Goldberger and others observed in G-deficient animals, though inconstant, other forms of skin changes which resembled pellagra less than a simple seborrhoid-desquamative condition, in striking agreement with the intensive changes produced by the authors in rats by H-deprivation, with B_2 available. Reference even to György's initial report on H (*Ztschr. f. ärztl. Fortbild.* **28**:377 [June 15] 1931) reveals no information on the method of its preparation.

W. A. PEABODY, PH.D., Richmond, Va.

ULCERATIVE COLITIS

To the Editor:—I am impelled to reply to the communication of Drs. J. A. Bargen and L. A. Buie in THE JOURNAL, January 6, anent my article entitled "The Present Status of Idiopathic Ulcerative Colitis, with Especial Reference to Etiology," which appeared in THE JOURNAL, Nov. 25, 1933, page 1687, in order that their communication might not confound some of the issues discussed in my paper.

There is no basis for the inference that the brevity of my references to the material of Drs. Bargen and Buie do not give an accurate impression of what they have stated and done. The impressions and conclusions that I conveyed were my interpretations of the context of their published data. References to the original sources were given so that those interested and capable of critical analysis, particularly of bacteriologic-pathologic literature, might consult them.

The disparity in our views, in consequence of their communication, appears to be more apparent than real, for now they state that they have modified their ideas and recognize "that gaps might exist" in their concepts of the etiology of chronic ulcerative colitis. These observations, coming from the original proponents of a specific etiology on which specific therapy had been based, are to me tantamount to saying that at this time there is no proved specific etiologic factor and consequently there is no specific therapy. This, in its essentials, is confirmatory of my view based on experimental and clinical observations first expressed in 1927, a view discussed in some detail more recently in the paper to which I have referred.

If it is destructive and a disservice to the sick to state, as a result of research and clinical experience, that as yet there is no specific etiologic factor and no specific therapy in chronic ulcerative colitis and that in consequence the ultimate response to treatment in many with severe manifestations of this condition is unsatisfactory, how should one characterize the efforts of those who, for years, have emphasized specificity of etiology and of therapy, and who, although no longer stressing a definite causative micro-organism and specific therapy, fail to speak out in their articles as forcefully and as unmistakably of their changed point of view? The fact remains that the sanguine note struck by these writers in the present nonspecific therapy of ulcerative colitis by methods available to every practitioner unfortunately is not reflected in the literature as the experience of any other large medical center adequately observing, over years, a relatively large number of severe cases of this disorder.

MOSES PAULSON, M.D.,
The Johns Hopkins Hospital,
Baltimore.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

SKIN TEST FOR TUBERCULOSIS

To the Editor:—Is the tuberculosis skin test positive for persons, once tuberculous, who have now recovered? If so, what are the benefits to be derived from testing a group of school children? Please omit name.

M.D., Oklahoma.

ANSWER.—The intradermal tuberculin test (Mantoux) usually remains positive after the disease has been brought well under control. How long the test remains positive can be determined only by periodic tuberculin tests of the same group of individuals over long periods of time. Unfortunately, this has not been done in large numbers, so that figures are not available. The development of the primary focus of tuberculosis usually results in a positive tuberculin reaction. Evidence has accrued to show that some children with a positive reaction later do become negative. In such cases it is assumed that the foci of bacilli have been completely destroyed or so walled off that their products have no means of communication with the body tissues. No one knows just what percentage will bring their primary lesions so completely under control as to attain such a result.

As there is no control over reinfection of a child with tubercle bacilli from exogenous sources, one must always consider the possibility of the allergy indicated by the tuberculin test being kept up through reinfection. If it is granted that the majority of children who develop primary tuberculosis remain positive reactors to the tuberculin test throughout their lifetime, there are nevertheless great benefits to be derived from testing a group of school children. The older literature abounds with statements to the effect that nearly all children of school age have been contaminated with tubercle bacilli and therefore have primary tuberculosis. However, owing to reduced opportunities for infection, large numbers of children today are growing into or have reached adult life without contamination with tubercle bacilli. In fact, in many parts of the United States, 70 per cent or more of the young adults have not been contaminated with tubercle bacilli.

The lower the incidence of positive tuberculin reactors in any group of persons, including school children, the more valuable the tuberculin test becomes. In many groups of school children tested during the past five years, 10 per cent or less reacted positively to the test. Each child who does react positively has been exposed. This is an important fact, since through examination of his associates one may find the source of exposure in the body of a person having unsuspected tuberculosis. Moreover, each child reacting positively has a focus of tubercle bacilli somewhere in his body. Therefore, further examination is indicated in an attempt to locate the focus and to study its extent. If the focus is not found by the physical or the roentgen examination, it is only because these methods are too crude; therefore, such children should be examined periodically, in order to bring to light any focus that later becomes large enough to be detected. One is then in a position to treat these children before their lesions have broken down, markedly reducing the chances of recovery, and before they have disseminated their tubercle bacilli to others.

INJECTIONS INTO HEART FOR RESUSCITATION

To the Editor:—I read in THE JOURNAL some time ago that no one would be justified in injecting epinephrine into the heart in case of apparent death. Would you still say that? If you think it might be justified, will you tell me the size needle to use and the point of insertion? It seems to me to be important enough to justify the query.

NATHANIEL F. CHEEVER, M.D., Greenfield, N. H.

ANSWER.—Intracardial injection therapy for the resuscitation of the stopped heart in cases of apparent death is a simple procedure worthy of trial in many instances of unexpected cardiac collapse. Many substances in addition to epinephrine have been used successfully in restoring cardiac activity;

Hyman has described twelve such drugs (Resuscitation of the Stopped Heart by Intracardiac Therapy, *Arch. Int. Med.* **46:** 553 [Oct.] 1930). In this article it is stated that the preferred needle for intracardial injection should be at least 4½ inches (11.4 cm.) long for use in an adult and 2¾ inches (7.3 cm.) long for a child. The needle should be constructed of 19 gage unbreakable stainless steel.

The site of insertion has been the subject of considerable investigation by many workers in this field; as the restoration of automatic cardiac activity is said to be due more to the trauma produced by the prick of the needle in the myocardium rather than to the specific pharmacodynamic action of the drug injected, the site of the injection becomes a matter of especial importance. The first contraction of the heart muscle after the injection is always an extrasystole arising from the ectopic focus developed by the action current of injury as the result of the needle prick.

According to Hyman (THE JOURNAL, May 20, 1933, p. 1628), when the injection is made into the ventricle a series of ventricular extrasystoles may develop; if there has been a prolonged cardiac arrest with a high degree of myocardial anoxemia there may arise a paroxysmal ventricular extrasystolic tachycardia, which is quickly converted into ventricular fibrillation and fatal cardiac collapse. If, on the other hand, the injection is made into the right auricular area the same physiologic phenomena may develop with the production of a paroxysmal auricular extrasystolic tachycardia and subsequently auricular fibrillation. The difference here is that, whereas ventricular fibrillation is incompatible with the maintenance of life, auricular fibrillation is a well known and easily handled clinical entity. The site for intracardial injection, therefore, regardless of the substance used, should be into the right auricle.

It is interesting in this connection to note that the artificial pacemaker developed by Hyman at the Witkin Foundation for the Study and Prevention of Heart Disease, New York, utilizes a small electric current to control the ectopic rhythm in the right auricle instead of permitting the action current of injury to dominate the rhythm of the heart in a hit or miss method. The right auricle of the heart is easily approached by inserting the needle into the third or fourth interspaces about 1 cm. to the right of the sternal margin.

DYSPAREUNIA IN DOUBLE VAGINA AND UTERUS

To the Editor:—I have a patient, aged 21 years, who recently came to me complaining of painful intercourse. She has been married fourteen months, and it was impossible for her to have intercourse for two weeks following her marriage, owing to severe pain and tightness of the vaginal canal. Bimanual and speculum examination revealed two separate vaginal canals and two cervices, but I am not able to differentiate whether this condition is a uterus duplex (didelphic) or uterus septus. In either event, what is the safest procedure in removing the septum to relieve the painful intercourse, and would it be advisable for the woman to become pregnant? If pregnancy occurred in the two horns at the same time, would the danger encountered warrant a cesarean section at term, or would sterilization at this time be a safer procedure? How frequently does this anomaly occur?

M.D., Oklahoma.

ANSWER.—A double vagina does not often cause dyspareunia. In fact, many women who have this anomaly are not aware of it, even after having been married a long time, until a physician tells them about it. Not infrequently even a physician will fail to detect the septum in the vagina and not until dystocia arises in labor will his attention be directed to it. The reason for easily overlooking a double vagina is that in most instances in which this abnormality is present only one vagina is used for coitus. Because of this, the other vagina remains small and it may even have a hymen which remains unruptured. In spite of this, menstrual blood can and does escape through the smaller vagina but the women who have such anomalies do not know from which vagina the menstrual blood escapes. Hence a double vagina rarely produces disturbances in the sexual life of a woman until labor sets in, and even then dystocia is uncommon from this source. It may be possible in the case cited to stretch one vagina forcibly under gas anesthesia and at subsequent visits dilate this vagina with glass dilators. If, however, the septum appears to be tense, it may readily be removed by placing one long clamp on the upper edge and another on the lower edge and removing the sepum that lies between the two clamps. The portions that remain in the teeth of the clamps should then be sutured by means of an over and over continuous suture. Frequently there is a free space between the cephalic end of the vaginal septum and the vault of the vagina, so that a finger can be inserted from one vagina into the other at this point. In this case no sutures are necessary at the vault of the vagina. If, however, the septum is continuous with the dome of the vagina, sutures will also have to be placed here between the two cervices. A small gauze pack saturated with petrolatum should be placed in the vagina for twenty-four hours to prevent undesirable adhesions. In some instances, removal of a vaginal septum has cured sterility.

A uterus duplex is not a contraindication to pregnancy. In fact, most women with this abnormality are prolific and, while many have disturbed labors, this is not true of the majority of them. Furthermore, even in spite of childbirth, some cases are so entirely devoid of complications that the abnormal condition of the uterus is not recognized.

Abortions are more common in cases of double uterus than in cases of normal uteri. In some series of cases, abortion occurred in more than 25 per cent of the pregnancies. An ovum may develop in one or the other uterus or in the two uteri at the same time. Usually the nongravid uterus is pulled back of the pregnant one and it may or may not produce dystocia. Labor is usually prolonged as a result of underdevelopment of the uterine musculature and especially of interference by the nongravid uterus. Complications may arise because of abnormalities in presentation, as breech presentations are common in cases of double uterus. However, since labor is terminated spontaneously in most instances of uterus didelphys, such cases should be managed in the same way as other cases. Intervention should be considered only when evidence of trouble arises. In most instances in which complications occur, a cesarean section should be done; but it is not necessary or advisable to sterilize these patients at the time of their first labor.

THIOCYANATE POISONING

To the Editor:—Mrs. H. S., aged 65, suffering from chronic incipient pulmonary tuberculosis and hypertension (about 220 systolic) called a physician and he prescribed for her sodium sulphocyanide in crystal form, a teaspoonful three times daily in water after meals. She took the first dose in the evening and slept better than usual but says that she felt queer next morning but took the dose. This time she had a feeling that she was going to die and lapsed into unconsciousness, and at noon her husband gave her the third dose, but she was unaware of taking it. During the afternoon she began to have twitching and at 10 p. m. had a severe convulsion. Another physician was called, and he told her to discontinue the medicine. She was taken to the hospital the next morning in an ambulance, in clonic and tonic seizures, throwing herself and rolling about. There was complete urinary retention. Catheterization resulted in the withdrawal of 660 cc. of urine. Lumbar puncture was done and the fluid found normal to pressure and microscopy. A spinal Wassermann test was negative. Twenty-five cubic centimeters of 10 per cent magnesium sulphate was given to control the convulsions. She received codeine, 0.0327 Gm., at four different intervals during the night. She showed considerable improvement on the third day but still had to be catheterized and was confused mentally. She was rational on the fourth day and voided urine voluntarily. The highest temperature was 100 F. on the second hospital day, with a pulse rate of 100. The patient left the hospital on the fifth day in a wheel chair but has been unable to use her lower extremities and after six months can walk with assistance. Merck suggests a dose of 0.1 Gm. three times a day. Am I right in concluding that this is a case of poisoning by sodium sulphocyanide or sodium thiocynate?

M.D., Washington.

ANSWER.—The description of the symptoms and signs is entirely compatible with a diagnosis of thiocyanate poisoning. It is not surprising that such poisoning occurred with the huge doses administered; the teaspoonful of crystalline sodium thiocyanate was approximately equivalent to 4 Gm. of the salt. The usual therapeutic dose does not exceed 1 Gm. daily. Thus, twelve times the usual amount was administered in twenty-four hours. It is, however, surprising that the patient survived, particularly as this drug is but slowly eliminated and cumulative effects are common.

The tolerance to thiocyanate salts is not uniform; in some persons even small amounts are known to have produced serious intoxications. Renal functional impairment appears to delay the excretion of the drug, and cumulation and intoxication are more prone to develop when nephrosclerosis coexists with the hypertensive arterial disease. The more carefully controlled recent studies of thiocyanate therapeutics are almost unanimous in concluding that the drug is distinctly dangerous; the toxic reactions are so severe that the danger from the therapy is greater than the danger from the disease for which it is administered.

The most common manifestations of thiocyanate intoxication are muscle weakness, papular dermatitis, nausea and vomiting, slight (but never marked) fever, disorientation and mental confusion, aphasia, delirium, convulsive seizures, coma and death. These phenomena appear usually in the order given, with increasing severity of the intoxication. In a recent carefully controlled study of thiocyanate therapy in hypertension by Goldring and Chasis (*Arch. Int. Med.* **49:**321 [Feb.] 1932), thiocyanate was administered to fifty patients, of whom thir-

teen (26 per cent) showed evidence of intoxication and two of the thirteen died. The dosage employed was conservative, less than 1 Gm. daily. It was discovered that intoxication occurred in some instances when there was little retention of the drug within the body. Individual susceptibility appears to be a prominent factor in determining the severity and outcome of thiocyanate intoxication. Experimental studies on the toxicology of thiocyanates (Nichols, J. B.: *Am. J. M. Sc.* **170:** 735 [Nov.] 1925) revealed brain and spinal cord changes similar to those which occur in severe intoxication in man. Small doses, such as from 0.065 to 0.13 Gm. thrice daily, usually fail to cause any appreciable fall in the arterial tension. With doses up to 0.3 Gm. thrice daily, satisfactory reduction of the arterial tension is obtained in about half of the patients.

It may be concluded that sodium or potassium thiocyanate (it appears immaterial which salt is employed) is not fully satisfactory for the management of hypertensive disease. In dosage adequate to be effective in reducing the arterial tension for any length of time, the likelihood of dangerous intoxication is considerable. The probable detriment outweighs the probable benefit when one considers the results from a broad and unbiased point of view. Certainly the amounts prescribed by the first physician, as cited, are entirely unwarranted. A study of the rate and completeness of the excretion of the salt in this patient would have been interesting and probably instructive. Thiocyanates give a deep red in an acid solution when treated with ferric chloride. This color may be used for quite accurate quantitation colorimetrically when compared with the color developed from a solution of thiocyanate of known strength.

PHYSIOLOGIC EFFECTS OF WINES WITH MEALS AND DIETARY RITUAL

To the Editor:—Is there any physiologic reason for serving different wines with each course at a full dinner? In other words, does the taking of these wines aid digestion, improve the appetite or what? The following is an item which I am quoting from the December 1933 *Home and Field*, page 171: "As a pre-dinner appetizer, then, instead of a cocktail, a very dry sherry or plain vermouth, either served with or without bitters. For oysters, a dry white wine, and with soup, if you wish, you may serve dry sherry, though it should be hardly repeated if it has been used as an appetizer. For the fish, a dry white wine, either a Burgundy, one of the dry Bordeaux such as Graves, or a Rhine wine. For the entrée, a light red wine, either Bergundy or claret, or even a fine white Burgundy. For steaks or roasts and all game, a good heavy Burgundy or claret must be served. For desserts which are not too sweet, a Sauterne, a demi-sec champagne, port, a sweet sherry or Madeira. With coffee, nuts, fruit and cheese, port, sherry, or Madeira may be served." Please omit name.

M.D., New York.

ANSWER.—The only ingredient in alcoholic beverages that so far has been shown to have action on the digestive processes is the alcohol itself. Alcohol in quantities that do not lead to acute or chronic gastritis acts as a stimulant to the gastric glands and hence increases the output of gastric juice. This is not due to the taste of alcohol or to the local action of alcohol in the stomach, because the same effects are produced by alcohol injected intravenously or administered by rectum.

But it is also established that the flavors in foods and drinks, to a person accustomed to such flavors and finding them enjoyable, can also increase the secretion of gastric juice by a complex reaction in the central nervous system. This has been shown certainly for food flavors and probably also obtains for the flavors of alcoholic beverages, although the latter has not been definitely proved. Repeated sippings of various kinds of alcoholic beverages with the different courses of a meal may thus tend to prolong this appetite gastric juice secretion factor beyond that produced by a single such ingredient, because it is well known that the taste for a substance or the enjoyment of the taste soon fades on repetition. Such continued action of the appetite gastric juice secreting mechanism would be significant only in persons with decreased gastric secretory mechanism, because, normally, more gastric juice is secreted during a meal than is actually needed for gastric digestion.

The alcohol itself in moderate amounts has, of course, another indirect effect on digestive processes, due to a general relaxation of bodily tensions and mental strain, both of which act unfavorably both on gastric secretion and on gastric motility. But the elaborate practices of taking different types of alcoholic beverages alleged to be particularly suited to certain types of foods is largely a built-up dietary ritual similar to the rituals in religion. That is to say, persons not accustomed to these habits digest their food well in their absence. But when once established the mental distress and disagreeable feelings due to the absence of such dinner accessories may for a time tend to decrease the gastric juice during the meal until "reeducation" has been established in the individual.

ULTRAVIOLET ERYTHEMA—PRURITUS ANI—ALLERGIC DISORDERS

To the Editor:—I am writing to you to get your opinion on some medical matters pertaining to myself. I have an ultraviolet ray burn on my left leg, between the ankle and the knee, over the shin or front of the leg. There are several patches or areas raised above the level of the skin about the thickness of a postcard, just like scar tissue. That part of the leg was treated with ultraviolet rays for supposed ringworm three or four years ago, resulting in this condition. I am annoyed by the intense itching over these areas. I scarcely know what to do for it any more, as I have used everything I can think of and what my colleagues and dermatologists have prescribed for it and nothing so far has stopped it. The remedy that gives me the most relief is 10 per cent phenol (carbolic acid) in petrolatum and that only temporary. Do you know of any caustic or escharotic I could use to destroy the sentient nerves in those areas without producing an ulceration of the parts? Or would you recommend surgery and excise the areas, a part at a time, and when that heals up, excise another, and so on until the whole thing is cut out? I also am a victim of pruritus ani. The intense itching is as bad as the leg. What can you suggest for that? The same ointment gives the most relief but doesn't stop it. I also have an enlarged prostate, giving considerable trouble. Is there any drug or prostatic extract I can take orally to reduce the size, like thyroid extract for goiter? Or would you advise transurethral resection? I will give you this information, which may help you to give advice: I have been a victim of spasmodic asthma. I have that trouble practically under control. I find I am sensitive to proteins, especially wheat protein and sometimes bacterial, the pus germs and the pneumococcus predominating. These conditions have practically all cleared up by my avoiding the wheat foods in my diet, and I have been feeling fairly comfortable all the time for the last two years. Some of the doctors here say I am allergic, whatever that is, but that doesn't help me any, although I have a fairly good opinion of what allergy is. Now a little kindly advice from you may help me in these troubles.

M.D., Ohio.

ANSWER.—While it is risky to attempt diagnosis or therapy by mail, it is permissible to give a tentative opinion based on the description. It would be a rare thing for ultraviolet radiation to cause the condition mentioned on the leg. A dermatologist probably can make a diagnosis on inspection or by investigation. He may be able to cure or relieve the condition with x-rays (if they have not already been used) or by topical remedies or both. Especially as the patient is of an allergic type, it would be too hazardous for any one to prescribe even local remedies without seeing the condition and noticing the effect of remedies prescribed.

As a rule, x-rays judiciously administered by an expert will stop anal itching in about a month and with absolute safety. But before doing this, the possible causes of the condition should be checked—local causes, such as ringworm; general causes, such as diabetes, intestinal parasites, hemorrhoids, and fistula or fissure, foci of infection, or dysfunction of the nervous system. It is possible, but not probable, that the enlarged prostate might have something to do with it.

The treatment for enlarged prostate depends on the cause and the type. Prostatic massage and other physical therapeutic methods may be beneficial for some types, while surgery is necessary for other types. It is advisable to consult a genitourinary specialist for this condition, because treatment prescribed without an examination might produce harmful results.

We regret our inability to give specific advice. The only possible advice that we can give is necessarily in the nature of general suggestions.

TREATMENT OF NITROGEN GAS POISONING

To the Editor:—Kindly inform me as to the present treatment of cases exposed to or overcome by nitrous gases, such as nitrogen monoxide, nitrogen trioxide and red fuming nitric acid. Is oxygen-carbon dioxide indicated in the more severe cases and are there any contraindications for its use at any time? Is ammonium carbonate or any compound that might liberate alkaline fumes of any value if administered at once? Kindly omit name.

M.D., Indiana.

ANSWER.—The treatment called for in conditions resulting from the action of nitrogen gases is far more extensive than that directed solely to edema of the respiratory tract. The following suggestions are made:

1. Although impairment usually is delayed for ten or twelve hours, exposure occasionally is immediately followed by failure of various brain centers and prompt prospective death. In these few cases, early administration of artificial respiration and oxygen-carbon dioxide is needed. If the affected individual survives, he may be in need of some or all of the subsequently suggested measures.

2. Promptly after exposure to any of the nitrogen gases, and without waiting for any impairment, complete rest should be procured and oxygen should be administered, but not necessarily oxygen-carbon dioxide mixture. The violent respiratory excursion occasioned by carbon dioxide (7 per cent) is undesirable. Oxygen alone is most helpful, and carbon dioxide should be avoided unless necessary to stimulate respiration. The use of

atropine in moderate doses may be advantageous. In about two out of seven cases, tracheotomy may be required.

3. Systemic disease may ensue, resulting from the action of absorbed nitrites. The cardiocirculatory system and the kidneys may be damaged. The administration of 50 per cent dextrose solution is warranted. Very early supportive treatment should be extended to the heart. Measures increasing the viscosity of the blood are not commendable.

4. Pneumonia and other infectious processes of the respiratory tract are frequent. All procedures should contemplate the probability of such events.

The action of nitrogen gases, after entering the respiratory tract, is almost instantaneous. Theoretically, there may be a time when the administration of alkali vapors, fumes or gases is desirable. Practically, this is not the case, as already the local damage to tissues has taken place and neutralization has been provided by the formation of nitrates and nitrites. For this reason the use of ammonium carbonate, ammonia or related substances is not recommended.

Treatment of these conditions is further discussed by Zangger in brochure 69 of the International Labor Office's Encyclopedia of Occupation and Health.

PEMPHIGUS IN MOUTH

To the Editor:—Mrs. D., a Russian Jewess, aged 61, has had recurring bullae on the hard palate for five months. These bullae are flaccid, occur every two or three weeks, and rupture very easily in from six to eight hours with a bloody discharge. There is some pain after the rupture but no odor, and there results a clean looking ulcer with a definite red border, which heals with no scarring. To date these lesions have appeared only on the hard palate. Careful search has revealed no bullae on the skin or in the vagina. A diagnosis of pemphigus was confirmed at a large hospital. Physical and laboratory examinations give essentially negative results except for hypertension varying from 150 to 180 systolic and 95 to 100 diastolic. The patient has no teeth. Roentgen examination shows no retained roots or other pathologic condition of the upper or lower jaws. Examination of the sinuses gives negative results. Treatment at present is a high caloric, high vitamin diet, calcium gluconate and viosterol, 1 drachm (4 cc.) three times a day, and injections of sodium cacodylate every other day. So far, although the patient's general condition remains good, there has been no improvement in the oral condition. Please use initials only. M.D., Massachusetts.

ANSWER.—In a patient of 61, pemphigus beginning in the mouth has anything but a cheerful prognosis. Failure of treatment to control it is the rule. The diet now in use should be continued. Sodium chloride should be excluded, for salt retention is a feature of the disease. One of the substitutes obtainable from the druggist should be used in its place.

The Davis treatment, intramuscular injections of a hemostatic every other day and an intravenous injection of iron cacodylate on the alternate day, has relieved some cases. Alkalization is highly extolled by some authorities. Arsphenamine, neoarsphenamine or tryparsamide, which have been successful in some cases, can be given only with the greatest caution to a woman of 61 with high blood pressure. Quinine by mouth or intravenously pushed to the physiologic maximum has long been used, with occasional benefit. High colonic flushings given daily for a long period have apparently cured some cases. Spontaneous improvement for a short or longer time occurs in pemphigus, so that the treatment must not be credited until the improvement has lasted for some time, or until a recurrence has again yielded to the same treatment.

SHOE CORRECTION FOR BOWLEGS AND KNOCK-KNEE

To the Editor:—What shoe corrections are advisable for bowlegs in infants and young children? For knock-knee?

BERRYMAN GREEN, M.D., Riverside, Calif.

ANSWER.—The decision must be made according to the situation present in the individual child. If the feet are pronated, regardless of whether bowlegs or knock-knee is present, the tilting of the shoes should be made on the inner border of the heel.

In many cases, modification of the shoes is highly beneficial; in others, correction of the deformity is a natural result coincident with treatment and growth. It is natural, when a limb grows in length, that it should grow straighter, unless there are some basic factors that prevent this natural self correction of deformity. It is well known that when nature corrects bowlegs it often overcorrects, producing knock-knee and vice versa.

The correction of bowlegs, which are often accompanied by inverted feet, i. e., moderate pigeon toes, may be accomplished by tilting the outer borders of the heel and soles to decrease the degree of inversion, supination, adduction or varus; i. e., to produce a very moderate degree of flattoot.

In case of knock-knee, or genu valgum, which is usually accompanied by flatfoot, raising the inner border of the heel and sole is advisable for the first correction, then raising the inner border of the heel for the second correction, and, third, raising the inner border of the heel and outer border of the sole.

It may be difficult to evaluate the benefit derived from these measures, especially during a period of rapid growth.

The most common modification of the shoe is raising the inner border of the heel three-sixteenths inch. The next most common is raising the inner border of the heel and inner border of the sole. The third most common is tilting the inner border of the heel and outer border of the sole.

FIBROSIS UTERI

To the Editor:—To one, like myself, who has spent nearly ten years in as large an institution as the Los Angeles County General Hospital and who has examined on an average of from five to six thousand surgical specimens a year for some years, the problem of the so-called fibrosis uteri is a real one and one that is not easily answered. Many uteri are removed that show comparatively little or no pathologic changes to account for the uterine bleeding said to have been present clinically, and still the surgeon often falls back on the diagnosis of fibrosis uteri, particularly when the uterus appears to be somewhat enlarged and the myometrium seems to be rather fibrous. Most of those uteri are multiparous and the enlargement is consistent with several pregnancies. Some pathologists have even gone so far as to report normal uterus back to the surgeons, much to their chagrin. So now, finally, are there generally accepted criteria for the gross and microscopic features of fibrosis uteri?

LAWRENCE PARSONS, M.D., Reno, Nev.

ANSWER.—Attempts to explain uterine bleeding on the basis of fibrosis uteri, arteriosclerosis of the uterine vessels, and kindred lesions, have always been unsatisfactory because the pathologic condition has been such a variable factor and not at all proportionate to the amount or character of the bleeding.

Even though the patient has an enlarged "fibrotic" uterus, the modern conception is that abnormal bleeding in such cases is attributable to disturbed function of the ovaries, the anterior pituitary or even other endocrine glands. The presence of a disproportionate amount of fibrous tissue is believed to be secondary or incidental rather than the primary cause of the abnormal flow.

Diagnosticians may have gone too far in ruling out fibrosis as a cause of hemorrhage, but it is certain that some factor in addition to fibrous changes plays a part in most of these cases.

VINCENT'S INFECTION OF MOUTH

To the Editor:—A single man, aged 25, in good general condition, contracted Vincent's infection of the mouth in 1926. He has been treated on and off by several good dentists without cure. He has a horizontal impacted third molar on the lower right, which, with a malposed second molar, has formed a focus for residual infection. He has had among other treatment local applications of 10 per cent arsphenamine in dextrose by the last dentist who treated him, without appreciable improvement. That dentist referred him to me recently for intravenous therapy. I have to date given him three injections at five day intervals of 0.6 Gm. of neoarsphenamine and two injections at the same interval of 0.9 Gm. of neoarsphenamine. But smears taken at weekly intervals from the gums are still positive. His teeth are in excellent condition. The dentist believes that the impacted wisdom tooth and the second molar have caused an area of infection about those teeth and constitute the obstacle to overcome in effecting a cure. Do you think that it is reasonably safe to extract those teeth in the presence of the Vincent infection? Or what is the proper procedure in this case? Is there any new medicinal treatment? Should intravenous neoarsphenamine be continued, and if so how many injections should be considered a good trial of this treatment? I am enclosing a roentgenogram of the impacted molar. Please omit name. M.D., Connecticut.

ANSWER.—From the report of conditions given, this is probably not a case of Vincent's infection, which is an acute condition with definite and positive clinical symptoms: 1. There is a rapid superficial necrosis. The surface of the tissue is covered with a greenish pasty mass, easily removed, exposing hemorrhagic or bleeding surfaces. It is rapidly progressive. If this were a case of Vincent's infection, the third molar shown in the roentgenogram would be entirely uncovered in a few days. 2. There is always a fetid, foul odor, which can usually be recognized at a considerable distance. 3. There is increased flow of saliva. 4. The temperature ranges from 100 to 101. 5. There is extreme malaise, weakness and depression. 6. There is usually mental depression.

Vincent's infection is an acute condition and there is no such thing as chronic Vincent's infection. This disease was described first by Dr. T. L. Gilmer, who called it acute ulcerative gingivitis. He described in classic fashion its etiology and treatment.

The present case is probably a low grade mixed infection of the pockets surrounding this third molar. Fusiform bacilli and spirochetes can always be found in smears from such areas, but their presence is not diagnostic of Vincent's infection. After a few days' local antiseptic treatment it is probably safe to remove such a tooth, but not more than one such infected tooth should be removed at a time. This should, of course, be done under proper conditions and with proper after-care and supervision.

No new medical treatment for such cases has been recommended recently. Intravenous injection of neoarsphenamine has never been justified in the treatment of Vincent's infection, either theoretically or clinically, and has been generally discarded by the practitioners most experienced in the study and treatment of the infection.

ENDOCRINE ALOPECIA

To the Editor:—A woman, aged 21, has been shedding her hair for the last eight years. At times the hair will grow in somewhat but it will quickly begin to fall again. That began about the time of her first menstruation. Her scalp is dry and she complains a great deal of itching. There does not seem to be any dandruff. The pubic hair and that in the axilla is also sparse. She has had a good deal of trouble with menstruation, which has been scanty, about five days in duration, and until lately painful. The flow at first is pale but at the end becomes bloody. There are no clots at present. Vaginal examination shows a small, anteroflexed uterus; the ovaries are not palpable. The introitus is rather small, even for a virgin. She is quite slender in build, 67 inches (170 cm.) in her stocking feet and weighs 118 pounds (53.5 Kg.). I have given her amniotin and thyroid internally, which has improved the menstruation and lessened the pain and for a while seemed to stimulate somewhat the growth of hair. Lately I have been giving also tablets of the anterior pituitary body but to date have gotten nowhere. Can you make any suggestions as to treatment of this case? Please omit name.

M.D., Ohio.

ANSWER.—From the fact that this peculiar disturbance of hair growth began at puberty, it seems likely that some endocrine gland dyscrasia is responsible. The relief of the dysmenorrhea by glandular therapy supports this idea. If the alopecia in this case is to be ascribed to a disturbance of one of the endocrine glands, it seems much more like that due to thyroid deficiency than to any pituitary trouble. The basal metabolism should be determined, and if it is low or normal thyroid medication should be continued, frequent clinical examinations being supplemented by an occasional check of the basal metabolism. Local treatment should be kept up, stimulants, such as sulphur, salicylic acid, resorcinol monoacetate and the various tars being combined in an oily menstruum to counteract the dryness of the scalp. For instance:

		Gm. or Cc.
℞	Salicylic acid	1.0
	Resorcinol monoacetate	1.5
	Precipitated sulphur	1.5
	Ointment of rose water to make	30.0

M. Sig.: Rub into the scalp vigorously once a day.

In the description given there is no evidence of pituitary disturbance. If there was such evidence, it would be justifiable to hope for improvement in hair growth along with the beneficial effect on the other manifestations as a result of pituitary medication. In the absence of any sign of pituitary trouble the long drawn out, expensive and troublesome experiment seems hardly justifiable. Any such treatment must be kept up for months before an effect on growth of hair can be seen. The pituitary preparation should be given hypodermically.

SHREDS IN FIRST GLASS OF TWO-GLASS TEST

To the Editor:—What is the significance of the persistence of shreds in the first glass of the two-glass test six months or one year after the disappearance of all symptoms of (*a*) gonorrheal urethritis and (*b*) a nongonorrheal urethritis in spite of prostatic massages and the passage of urethral sounds? What further treatment is indicated? What treatment, in addition to prostatic massage twice a week, should be given to a patient whose prostatic smear is loaded with pus cells and staphylococci? The patient is a white man, aged 32, who presents a history of having had, two years ago, a gonorrheal urethritis, all the symptoms of which cleared up in six weeks after 1: 5,000 potassium permanganate irrigation and 5 per cent silver nucleinate instillations, but which left both glasses of the two-glass test rather cloudy and containing many shreds. Stannoxyl, methenamine, pyridium, caprocol and prostatic massages have been of no avail in permanently clearing both glasses of the two-glass test. The patient feels fine and has no subjective urinary symptoms. Please omit name.

M.D., Pennsylvania.

ANSWER.—The persistence of shreds in the first glass of a two-glass test means the presence of localized infection in the anterior urethra, probably located in the glands or follicles. These localized infections generally respond to the passage of urethral sounds coupled with massage of the urethra on the sound. In view of the fact that local treatment has failed to clear up the shreds, the urethra should be examined with the urethroscope and the infected glands and follicles localized. They are best treated with the high frequency spark through the endoscope.

In this particular case, massage of the prostate and heat by rectum are indicated and should be continued until the strippings are free from pus on microscopic examination.

TREATMENT OF HYPERHIDROSIS

To the Editor:—Patients occasionally ask me for an antiperspirant or deodorant and I am usually in the habit of referring them to the advertised preparations. I should like to have a prescription, if you care to suggest one, for this purpose that may be used in safety. Anything you have to say on this subject would be of interest to me and I have several patients who would also like your sanction or suggestions in this matter. Kindly omit name.

M.D., Massachusetts.

ANSWER.—The simplest remedies for local hyperhidrosis are lotions such as tannic acid or zinc sulphate in dilute alcohol, from 1 to 7 per cent. Alum may be used in the same way. The skin should be wiped dry and the lotion dabbed on and allowed to dry on. This may be done several times a day if necessary. A dusting powder should follow it. Salicylic acid, from 2 to 4 per cent, and benzoic acid, from 4 to 8 per cent, may be used in the dusting powder or in ointment of rose water. A stronger application of more lasting effect is 25 per cent aluminum chloride in water. The part is wiped dry or washed with plain water. After the skin is dry, the lotion is dabbed on and allowed to dry on. The solution is quite acid; therefore no soap must be used before it is applied, nor must the clothing be allowed to be wet with it. It should be used only once in three days until the effect is obtained, then once a week to prevent recurrence.

Local irradiation with x-rays produces the most lasting result. One-fourth erythema dose of unfiltered rays is given once a week until a partial effect is obtained; then the treatment is suspended. Usually considerably more drying will take place within the next two weeks. If not sufficient, more can be given, but not more than enough to total two full erythema doses. No irritating applications should be used during or immediately after the course of roentgen treatment. If the trouble recurs even years afterward, x-rays should not be used again if the full amount has been given during the first course.

FELSOL

To the Editor:—I am in receipt of an eight-page brochure entitled "Contribution to the Therapy of Bronchial Asthma," by Dr. M. Kaercher, in which is extolled the preparation "Felsol." I recall a previous statement in THE JOURNAL pointing out that Felsol is apparently secret in composition. I should like to inquire: Who is Dr. M. Kaercher, and is he an authority in internal medicine?

M.D.

ANSWER.—We have no record in our files concerning an individual named Dr. M. Kaercher, either in the files dealing with licensed physicians or in the student file.

According to the brochure, the composition of Felsol is now given as: Metozin 0.9 (Phenazone 0.25, Anilipyrine 0.4, Iodopyrin 0.25), Caffeine 0.1, digitalis and strophanthus glucosides 0.0015, and the alkaloid lobelia inflata 0.005 Gm. Tests made some time ago in the A. M. A. Chemical Laboratory indicated that the product contained an acetanilid derivative in addition to other products. It is our understanding that this product, distributed by the American Felsol Company of Lorain, Ohio, was seized by the federal Food and Drug Administration, allowed to go by default and destroyed. The substance may be looked on as a shotgun type of mixture promoted in typical "patent medicine" style.

YELLOWING OF HAIR AFTER PERMANENT WAVE

To the Editor:—Several beauty shop operators, on being asked about giving a permanent wave to a woman who has gray (almost white) hair, say that, if she has "any acid in her system," the hair will discolor. What do they mean by "any acid in her system"? Is there any basis for this idea?

I. E. HILL, M.D., Hannibal, Mo.

ANSWER.—The permanent wave, so called, is produced by moistening the hair with a strongly alkaline solution and then applying a considerable degree of heat. It seems to be difficult to avoid excessive heat, which injures the hair. This does not show so clearly in colored hair as in gray or white hair, which is apt to turn yellowish. The statement about "acid in the system" is an attempt to provide an explanation other than the true one in case the hair is yellowed by heat, and protect the operator from the blame due her.

SUCTION CELL RETAINER IN TREATMENT OF HERNIA

To the Editor:—A patient with an inguinal hernia asked my opinion of the value of the "suction cell retainer" for nonsurgical management in place of the usual truss. This appliance is sold by John G. Homan of the New Science Institute of Steubenville, Ohio. I felt that it was of no value but would greatly appreciate any information you have concerning this appliance.

RENO A. AHLVIN, M.D., Joliet, Ill.

ANSWER.—The suction cell retainer apparently consists of a round pad usually made about the size of the palm of the hand. It is claimed to remain in place by means of the suction mechanism of the pad without the use of a strap. The pad is claimed to be satisfactory for retaining a rupture during regular daily wear. No difference is claimed for different types of rupture. For strenuous exercises, a similar retaining pad with a belt to go round the hips is made. The suction cell pad combined with strengthening exercises to the abdominal muscles is claimed to cure a rupture when cure is possible.

The general tone of the literature and testimonials is such as to lead one to infer much more than it is found actually to claim on careful reading. This type of advertising has been deprecated by medical men and by most ethical advertisers. Probably no more can be expected of this method than from the use of a well fitting truss, if as much.

TREATMENT OF FIBROID TUMOR

To the Editor:—A woman, aged 45, married, with one child 19 years old, had the usual diseases of childhood. She has not been sick since menstruation ceased eighteen months ago, except for hot flashes, which persisted until this summer. Six months ago she noted a symptomless hypogastric mass. Examination showed it to be a fibroid. It has grown slowly until it is the size of two fists. There has been no bleeding nor any other symptom except for some constipation and a moderate gastric hyperacidity. Would irradiation be desirable in this case or would surgery offer a better result? Please omit name. M.D., Ohio.

ANSWER.—Operative removal is the treatment of choice. Irradiation of pedunculated tumors is inadvisable because of the danger of necrosis. Palliation in such cases is inadvisable; the risk is too great.

"LIVER GROWN"

To the Editor:—In THE JOURNAL, Oct. 28, 1933, you answer "M.D., Pennsylvania," who asks concerning the nature of the condition popularly known as "liver grown." In Pennsylvania and in Ohio in the latter of which I had my early knowledge of folklore, there was a term the laity gave to a condition that came after such an experience as the Pennsylvania physician mentions. This condition consisted of a soreness and stiffness about the middle of the body where are found the liver, the lower ribs and the diaphragm. This soreness and stiffness lasted for from a few hours to several days. This depended on the amount of violence done and the length of time consumed in the causation. In my locality the term "liver grown" was applied to this condition, generally caused by the following experiences: long periods of crying, sobbing, hysterical giggling or laughing; running at a jog or "dog trot" for some time; being tossed up in the air and caught by a strenuous father while the child is wildly giggling; long rides on a poor trotting horse, and such experiences as quoted in the doctor's question. I believe that the condition is an acute myositis of the diaphragm and the lower intercostals. This condition never comes during the course of some regular exercise or duty. It comes after some unusual occurrence, as mentioned. I have never heard that medical advice was seriously sought for relief of the condition. I have searched for the condition in medical literature and have thus far found no answer.

IVAN I. YODER, M.D., Cleveland.

TRACHOMA

To the Editor:—In Queries and Minor Notes in THE JOURNAL, January 20, is a question from a physician concerning the treatment of trachoma. The question is signed "M.D., Nevada." I should think it would be well to follow up your answer with a statement something as follows:

The condition as described by the physician in Nevada, wherein 75 per cent of the pupils in the schools of a certain town are described as having trachoma, resembles conditions that have been found in the past in other places, wherein high percentages of the school children have been described as having trachoma. In such cases I have usually found that the condition that was thought to be trachoma was not trachoma but a benign folliculosis or follicular conjunctivitis. This may be the case in the Nevada town spoken of. I would be inclined to advise the physician to use a much milder course of treatment than chaulmoogra oil, the best being 0.25 per cent zinc sulphate for instillation in the eye, as it obviously would not be well to subject a patient with folliculosis to rather severe treatment. The instillation of zinc sulphate for a period of six or eight weeks would also help the physician to decide whether trachoma or some benign follicular disease of the conjunctiva was prevalent in the school children. C. E. RICE, M.D., Rolla, Mo.

Surgeon, U. S. Public Health Service.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: Cleveland, June. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Written (Group B Candidates).* The examinations will be held in various cities of the United States and Canada, April 7. *Oral* (all candidates), Cleveland, June 12. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

AMERICAN BOARD OF OPHTHALMOLOGY: Cleveland, June 11 and Butte, Mont., July 16. Sec., Dr. William H. Wilder, 122 S. Michigan Blvd., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: Cleveland, June 11. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

CALIFORNIA: Los Angeles, Feb. 26-March 1. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

COLORADO: Denver, April 3. Sec., Dr. William Whitridge Williams, 422 State Office Bldg., Denver.

CONNECTICUT: *Regular.* Hartford, March 13-14. *Endorsement.* Hartford, March 27. Sec., Dr. Thomas P. Murdock, 147 W. Main St., Meriden. *Homeopathic.* New Haven, March 13. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

IDAHO: Boise, April 3. Commissioner of Law Enforcement, Hon. Emmitt Pfost, 205 State House, Boise.

ILLINOIS: Chicago, April 10-12. Supt. of Regis., Mr. Eugene R. Schwartz, Springfield.

IOWA: Des Moines, Feb. 26-28. Dir., Division of Licensure and Registration, Mr. H. W. Grefe, Capitol Bldg., Des Moines.

MAINE: Portland, March 13-14. Sec., Dr. Adam P. Leighton, Jr., 192 State St., Portland.

MASSACHUSETTS: Boston, March 13-15. Sec., Dr. Stephen Rushmore, 144 State House, Boston.

MINNESOTA: *Basic Science.* Minneapolis, April 3-4. Sec., Dr. J. Charnley McKinley, 126 Millard Hall, University of Minnesota, Minneapolis. *Medical.* Minneapolis, April 17-19. Sec., Dr. E. J. Engberg, 350 St. Peter St., St. Paul.

MONTANA: Helena, April 3. Sec., Dr. S. A. Cooney, 7 W. 6th Ave., Helena.

NATIONAL BOARD OF MEDICAL EXAMINERS: The examinations in Parts I and II will be held at centers in the United States where there are five or more candidates, May 7-9 (limited to a few centers), June 25-27, and Sept. 12-14. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

NEW HAMPSHIRE: March 15-16. Sec., Dr. Charles Duncan, State House, Concord.

NEW MEXICO: Santa Fe, April 9-10. Sec., Dr. P. G. Cornish, Jr., 221 W. Central Ave., Albuquerque.

OKLAHOMA: Oklahoma City, March 13-14. Sec., Dr. J. M. Byrum, Mammoth Bldg., Shawnee.

PUERTO RICO: San Juan, March 6. Sec., Dr. O. Costa Mandry, Box 536, San Juan.

RHODE ISLAND: Providence, April 5-6. Dir., Dr. Lester A. Round, 319 State Office Bldg., Providence.

TENNESSEE: Memphis, March 26-27. Sec., Dr. H. W. Qualls, 130 Madison Ave., Memphis.

WEST VIRGINIA: Charleston, March 12. State Health Commissioner, Dr. Arthur E. McClue, Charleston.

WISCONSIN: *Basic Science.* Madison, March 24. Sec., Prof. Robert N. Bauer, 3414 W. Wisconsin Ave., Milwaukee. *Reciprocity.* Milwaukee, April 5. Sec., Dr. Robert E. Flynn, 401 Main Street, LaCrosse.

THE AMERICAN BOARD OF RADIOLOGY

New Examining Board for Certification of Specialists in Radiology

The desirability of instituting a certifying board for radiology was brought to a head at the meetings of the American Medical Association and the American College of Radiology held in New Orleans in 1932. At that time committees were appointed by the College of Radiology and the Section on Radiology of the American Medical Association to investigate the advisability of forming such a board. At the suggestion of the Council on Medical Education and Hospitals, this matter was brought to the attention of the American Roentgen Ray Society, the Radiological Society of North America and the American Radium Society at their annual meetings, and each of these societies likewise appointed a committee to investigate the advisability of forming such a board.

The committees representing these five radiologic organizations met, June 11, 1933, in Milwaukee during the meeting of the American Medical Association, effected a preliminary organization and adopted the following recommendations to be presented to each of the five associations represented:

1. That it is the sense of this joint committee that a national examining board for radiologists be formed.
2. That it be recommended to each of the five societies here represented that three members be appointed by each of the societies to constitute a national examining board for radiology.
3. That the purpose of the board shall be the examination and certification of radiologists.
4. That the board thus formed be authorized to effect its own organization, elect officers, adopt rules of procedure and proceed to the examination and certification of candidates.

The foregoing recommendations were approved by each of the societies, namely, the American College of Radiology, the American Roentgen Ray Society, the American Radium Society, the Radiological Society of North America and the Section on Radiology of the American Medical Association. Three members were appointed from each of the societies to form the board.

The organization meeting of the board was held at the Palmer House in Chicago, Sept. 28, 1933, during the first American Congress of Radiology, and H. K. Pancoast was elected president of the board and B. R. Kirklin secretary-treasurer. A committee consisting of W. F. Manges, A. C. Christie and John W. Pierson was appointed to draw up by-laws and secure the incorporation of the board.

The board met again in Washington, D. C., January 27 and 28, at which time by-laws and articles of incorporation were adopted. The following permanent officers were elected: H. K. Pancoast, president; A. C. Christie, vice president, and B. R. Kirklin, secretary-treasurer.

The purposes of the board according to the by-laws are as follows:

(*a*) To elevate the standards and advance the cause of radiology by encouraging its study and improving its practice.

(*b*) To test the qualifications of those who profess to be specialists in radiology by arranging and conducting examinations of voluntary applicants for the certificate of the board, and to issue certificates to those found qualified therefor.

(*c*) To prepare and maintain a registry of holders of the certificate of the board.

(*d*) To serve the public, physicians, hospitals and medical schools by furnishing lists of those who have received the certificate of the board and thus to assist in protecting the public against irresponsible and unqualified practitioners who profess to be specialists in radiology.

The rules of the board require that applications for certificate be made on a prescribed form to be secured from the secretary.

Each applicant must establish to the satisfaction of the board that he is of high ethical standing, that he is a graduate of a medical school approved by the board, that he is a member of at least one of the societies that appoint members of the board, that he has had satisfactory experience in the practice of radiology, and that he is a physician duly licensed to practice medicine.

The by-laws of the board provide that "each applicant for the certificate of the board shall be examined in such manner and under such rules as the Board may prescribe, due weight being given in each individual case to professional attainments, years of training and practice, teaching and other positions held." It will be understood from this that the board intends to fix the extent and the scope of the examination in each individual case. The successive steps in a complete examination are as follows:

1. Submission to the secretary of the prescribed application form properly filled out.
2. Submission to the secretary of reprints or original thesis.
3. Personal appearance before the board for oral and practical examination.

The candidate will be informed after each successive step what is further required of him.

The experience of the boards already functioning has been highly satisfactory, and it is the general opinion that they have served to improve conditions in each specialty represented. Based on their experience the following advantages may be expected from the functioning of the American Board of Radiology:

1. Certification by the board furnishes a criterion to both lay and professional groups for judging a radiologist's qualifications.
2. Hospitals and other organizations will gradually establish rules limiting service on their staffs to those certified by the board.
3. It will gradually tend to limit specialization to those who are qualified to practice this specialty.
4. National and other special societies will eventually limit their membership to those who hold the board's certificate.
5. The public will gradually become informed of the importance of choosing specialists who are certified by the board.
6. Physicians in choosing consultants and in referring patients will gradually turn to those who are certified and thus help to eliminate those who are not qualified to practice radiology.

The first examination will be held in Cleveland, immediately preceding the annual session of the American Medical Association in June.

All radiologists interested should write to Dr. B. R. Kirklin, secretary, Mayo Clinic, Rochester, Minn.

New Jersey Endorsement Report

Dr. James J. McGuire, secretary, New Jersey State Board of Medical Examiners, reports 156 physicians licensed by endorsement during 1933. The following schools were represented:

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
University of Arkansas School of Medicine		(1931)	Mississippi
University of Colorado School of Medicine		(1926)	Colorado
George Washington Univ. School of Medicine	(1925), (1929), (1930)		Maryland
Georgetown University School of Medicine		(1927)	New York, (1932) N. B. M. Ex., New York, Pennsylvania
Howard University College of Medicine		(1931)	W. Virginia, (1932) Georgia, Kansas, Missouri, 2
Emory University School of Medicine		(1918)	Georgia
Chicago Medical School		(1928)	Illinois
Loyola University School of Medicine		(1930)	Illinois
Northwestern University Medical School		(1931)	New York
Rush Medical College		(1927)	N. B. M. Ex., (1928) Alabama, (1932) Michigan
University of Illinois College of Medicine		(1926)	Illinois, (1927) Pennsylvania
Indiana University School of Medicine		(1920)	Indiana
State University of Iowa College of Medicine		(1930), (1932)	Iowa
University of Kansas School of Medicine		(1929)	Kansas
Tulane University of Louisiana School of Medicine		(1931)	N. Carolina
Johns Hopkins University School of Medicine		(1920)	Virginia, (1929), (1931) Maryland
University of Maryland School of Medicine and College of Physicians and Surgeons		(1930, 2)	New York, (1932, 2) Maryland
Boston University School of Medicine		(1932)	New York
College of Physicians and Surgeons, Boston		(1904)	New York
Harvard University Medical School	(1929), (1930)		N. B. M. Ex.
Tufts College Medical School		(1930)	Mass., N. B. M. Ex., 2, (1931) N. B. M. Ex., New York
Univ. of Michigan Med. School	(1924), (1930, 2), (1932, 2)		Michigan
University of Minnesota Medical School		(1933, 2)	Minnesota
Washington University School of Medicine	(1931), (1932)		Missouri
University of Nebraska College of Medicine		(1932)	Nebraska
Albany Medical College		(1899)	New York
Columbia University College of Physicians and Surgeons	(1917, 2), (1923), (1925), (1926), (1929, 2)		New York, (1931, 2), (1932) N. B. M. Ex.
Cornell University Medical College	(1924), (1931), (1932)		N. B. M. Ex., (1927), (1928), (1929), (1930) New York
Fordham University School of Medicine, New York		(1914)	New York
Long Island College Hospital	(1909), (1929)		New York, (1928) Pennsylvania
Long Island College of Medicine	(1931, 3), (1932, 3)		New York
New York Homeopathic Medical College and Flower Hospital	(1926), (1930), (1931), (1932, 3)		New York, (1932) N. B. M. Ex.
New York University, University and Bellevue Hospital Medical College		(1924)	Penna., (1924), (1928), (1930, 4), (1931, 5), (1932) New York, (1930), (1931) N. B. M. Ex.
Syracuse University College of Medicine		(1931, 2)	New York
Hahnemann Medical College and Hospital of Philadelphia		(1932)	Maryland, New York
Jefferson Medical College of Philadelphia		(1915)	Ohio, (1918) Delaware, (1931) New York, North Carolina
Temple University School of Medicine	(1921), (1925, 2), (1930), (1931, 2), (1932)		Pennsylvania, (1932) New York
University of Pennsylvania School of Medicine		(1922)	California, (1922), (1926) Penna., (1925), (1930) N.B.M.Ex., (1930) N. Carolina
University of Pittsburgh School of Medicine		(1916)	Penna.
Meharry Medical College	(1931)		Maryland, (1932) Georgia
Meharry Medical Department of Walden University		(1900)	Mississippi
University of Tennessee College of Medicine		(1927)	New York, (1931) Tennessee
University of Texas School of Medicine		(1932)	Texas
Medical College of Virginia	(1929), (1931), (1932)		Virginia, (1931) N. Carolina
Univ. of Virginia Dep't. of Medicine	(1924), (1927), (1931)		Virginia, (1926), (1928) New York
University of Wisconsin Medical School		(1927)	N. B. M. Ex.
McGill University Faculty of Medicine		(1925)	Ohio, (1926), (1932) New York
University of Montreal Faculty of Medicine		(1924)	Connecticut
Deutsch Universität Medizinische Fakultät, Cze.		(1927)	Penna.
Universidad de Santo Domingo Facultad de Medicina		(1910)	Vermont
Christian-Albrechts-Universität Medizinische Fakultät, Germany		(1921)*	New York
Regia Università di Napoli. Facoltà di Medicina e Chirurgia		(1920)	Texas, (1927) New York
Regia Università di Palermo. Facoltà di Medicina e Chirurgia		(1904)	New York
University of Edinburgh Faculty of Medicine		(1931, 2)	New York
Universität Bern Medizinische Fakultät		(1923)	New York

*Verification of graduation in process.

New Jersey October Examination

Dr. James J. McGuire, secretary, New Jersey State Board of Medical Examiners, reports the written examination held in Trenton, Oct. 17-18, 1933. Forty-two candidates were examined, 37 of whom passed and 5 failed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
George Washington University School of Medicine		(1932)	80.1
Georgetown University School of Medicine		(1931)	77.7, (1932) 77.1, 81.5, 84
Loyola University School of Medicine		(1933)	81.3, 88.8
Rush Medical College		(1933)	81.1

Tulane University of Louisiana School of Medicine	(1932)	80.8
University of Maryland School of Medicine and College of Physicians and Surgeons	(1932)	80.7
Harvard University Medical School	(1932)	83
St. Louis University School of Medicine	(1931) (1932)	78.8, 81.5
Columbia Univ. College of Physicians and Surgeons	(1932)	79.8, 82.5, 86
Syracuse University College of Medicine	(1932)	81.6, 86.1, 88.1
University of Rochester School of Medicine	(1932)	83.2
Hahnemann Med. College and Hospital of Philadelphia	(1932)	82.5, 83.2, 83.5
Jefferson Medical College of Philadelphia	(1932)	85.5
University of Pennsylvania School of Medicine	(1932)	84.5
Woman's Medical College of Pennsylvania	(1931)	90.3
University of Virginia Department of Medicine	(1932)	86.8
University of Toronto Faculty of Medicine	(1929) (1931)	80.3, 80.3, (1932) 78.1
Regia Università di Napoli. Facoltà di Medicina e Chirurgia	(1929)	81.7
Regia Università di Palermo. Facoltà di Medicina e Chirurgia	(1924) 75.1, (1931)	76.3*
Regia Università di Pisa. Facoltà di Medicina e Chirurgia	(1930)	75.8
Regia Università di Roma. Facoltà di Medicina e Chirurgia	(1932)	83.4*
Univ. of St. Andrews Conjoint Med. School, Scotland	(1932)	82.7
School of Medicine of the Royal Colleges, Scotland	(1932)	86.2*

FAILED

School	Year Grad.	Per Cent
Georgetown University School of Medicine	(1932)	70.1
Regia Università di Genova. Facoltà di Medicina e Chirurgia	(1924)	56.6*
Regia Università di Napoli. Facoltà di Medicina e Chirurgia	(1909) 53.7, (1924) 71.6, (1932)	60.7*

* Verification of graduation in process.

Book Notices

Movies and Conduct. By Herbert Blumer, Associate Professor of Sociology, University of Chicago. Cloth. Price, $1.50. Pp. 257. New York: Macmillan Company, 1933.

Movies, Delinquency, and Crime. By Herbert Blumer, Associate Professor of Sociology, University of Chicago, and Philip M. Hauser, Instructor in Sociology, University of Chicago. Cloth. Price, $1.50. Pp. 233. New York: Macmillan Company, 1933.

Motion Pictures and the Social Attitudes of Children. By Ruth C. Peterson and L. L. Thurstone, Professor of Psychology, University of Chicago. [Combined with] The Social Conduct and Attitudes of Movie Fans. By Frank K. Shuttleworth and Mark A. May. Cloth. Price, $1.50. Pp. 75; 142, with illustrations. New York: Macmillan Company, 1933.

These books are part of a series entitled "Motion Pictures and Youth," financed by the Payne fund. They are psychologic and sociological studies, carried out by specialists in the fields of psychologic and sociological research who, as a rule, have not been known for their interest in moving pictures per se. The first volume, entitled "Movies and Conduct," is a study based on the life histories obtained from university students in various parts of the country, and high school students in Chicago. It was found that the influence of moving pictures is ambivalent as far as modifying states of existence is concerned. In some cases it was found that such traits as beautification, mannerisms and courtship technic were modified by the movies, and fantasies can be definitely linked up with the motion picture experiences of boys and girls. A number of examples are given in which the picture either had no effect or a negative effect in these respects. The question whether emotional excitement, and other influences commonly attributed to moving pictures, do have the effect they are supposed to have has not been solved by this study. The author points out that motion pictures do actually influence human conduct.

The second volume treats of the influence of the movies on crime. The impression has always been that moving pictures are an incentive and inspiration to crime and, by using the same technic as that used in the previous volume, the writers were able to show that this impression could not be entirely justified, as far as the conscious knowledge of the subjects was concerned. However, Blumer and Hauser say that "it seems clear that the motion pictures were a factor of importance in the delinquent, or criminal, careers of about 10 per cent of the male and 25 per cent of the female offenders." They found, too, that "on the other hand, movies may redirect the behavior of delinquents and criminals along socially acceptable lines and make them hesitant about, and sometimes deter them from, the commission of offenses." Sometimes, however, "they do not have such a desirable effect."

The third volume is a combination of two reports treating of the relationship of the motion pictures and social attitudes. In the first, the case studies were made by the use of the "attitude scale." This is a psychologic technic consisting of a list of statements, on a given topic, such as whether war is good or bad, which covers the whole field of possible attitudes toward that topic, from extreme conservatism to extreme radicalism. The subject is then required to check those statements which he believes to be true. These were given to the subject before and after his seeing a moving picture. For example, the attitude scale toward crime and punishment was given before and after a group of college students saw the picture "The Criminal Code," and it was found that there was a change in their attitude toward leniency in the punishment of crime. Studies of attitudes toward war, toward the punishment of criminals, and toward the Negro were thus made. In general, the results showed that a single picture might not have any effect on children but that two or more pictures had a cumulative effect. There was some evidence that the influence of motion pictures on the subject's attitudes persisted for some time after his seeing the picture. The second essay in this volume, dealing with the attitudes of "movie fans," consists of several studies in which various factors, such as reputation with the teacher or classmates, moral judgments, and social attitudes, are investigated by special tests to show the effect of movie going on the possessors of these factors. Data were also secured, by means of tests, determining children's attitudes toward such subjects as people of other lands, crime and criminals. The authors found that "from the data thus far presented it is apparent that the movies are only one of a larger number of factors which determine the attitudes and conduct of school children. That the movies are an influence there is no doubt." They discuss, in a general way, the theories behind the influence of the motion picture. The work has been well conducted according to the technics used in the field on which they are based. However, the technics themselves are open to criticism, chief of which is the fact that the autobiography method does not reach the subconscious changes and has no safeguards for the truthfulness of the statements given, and the psychologic tests are susceptible to community and other random influences which may swing the results either one way or the other, and which cannot be controlled by statistical means. The fact that these authors are so well known for their technical ability and scientific honesty should weigh against chance error, and this is borne out by the extremely conservative conclusions which they draw. The first two of the monographs are readable, and all three contain much meat for those who are interested in the subject of the influence of the motion pictures, but the results emphasize the need for more research. Physicians, pediatricians and psychiatrists who are often asked their opinion about the influence of the movies, and those who are confronted with this problem, will probably find these books helpful to them in discussing the "movie problem" with anxious mothers.

Manuel de neurologie. Tome I. L'anatomie du système nerveux: Une tentative de grouper en système fonctionnel, les voies et les centres de localisation diverse, par lesquels les diverses impressions sensorielles peuvent se traduire en réactions réflexes. Par le Dr. Cornelis Winkler. Partie 5: Le corps strié et le diëncéphale. Tome X, Opera omnia. Paper. Price, 35 francs, parts 1-5. Pp. 367, with illustrations. Haarlem: de Erven F. Bohn N. V., 1933.

The treatise on the anatomy of the nervous system, which even after the appearance of this fifth part remains incomplete, represents an attempt to group in functional systems the pathways and centers by which various sensory impressions are able to produce reflex reactions. This volume is limited to a consideration of the corpus striatum and the thalamus, hypothalamus and other parts of the diencephalon. The author is emeritus professor of neurology and psychiatry at the University of Utrecht, and because of his long and distinguished career any contribution from his pen is worthy of serious consideration. In the introduction he states that this book gives an account of the central nervous system as he sees it. One is therefore not disappointed in failing to find in it an adequate discussion of recent contributions by others to the field which it covers. Nevertheless, it is unfortunate that in more than 150 pages devoted to the diencephalon there is no mention of

the fundamental contributions by Huber and Crosby and their pupils Gurdjian and Rioch, or of the painstaking researches of Le Gros Clark. There is no bibliography. Some of the author's own observations are likely to meet an unfavorable reception on the part of neurologists. He describes in considerable detail a system of ascending fibers arising in the cervical spinal cord and brain stem and running to end in the putamen and globus pallidus.

Organic and Bio-Chemistry. By R. H. A. Plimmer, D.Sc., Professor of Chemistry in the University of London, at St. Thomas' Hospital Medical School. Fifth edition of "Practical Organic and Bio-Chemistry." Cloth. Price, $7.50. Pp. 624, with 70 illustrations. New York & London: Longmans, Green & Company, 1933.

In this edition the theoretical considerations of the organic chemistry section have been extended and additions have been made to the section on physiologic chemistry. The book offers a full course on the theoretical and practical phases of the subjects, brought down to date. Many practical, well chosen experiments appear throughout the text. A list of general and special reagents is appended. The simple, systematic presentation of the subject matter makes this book an especially helpful general reference work for the student, the teacher and the physician.

Medicolegal

Taxes: Clinic Not Exempt from Taxation.—The Lois Grunow Memorial Clinic, Inc., of Phoenix, Ariz., sought to restrain the assessment and collection of taxes against its real and personal property. There was a judgment against the clinic in the trial court and an appeal was taken to the Supreme Court of Arizona.

The Arizona statutes exempt from taxation corporations not organized for profit, formed for research, investigation and experimentation in scientific subjects. Buildings used for educational purposes and charitable institutions for the relief of the indigent or afflicted are also exempt. Such statutes exempting property from taxation, said the Supreme Court of Arizona, are to be strictly construed. The presumption is against tax exemption. The evidence in this case, continued the court, discloses that while some charitable practice is done individually by the several physicians and surgeons who rent and occupy offices in the clinic building, yet each pays rent and conducts his own business for a profit and makes charges for his professional services. The fact that these physicians and surgeons rent space in the clinic building and conduct their private practice therein in no way differentiates them from any other physician or surgeon who does likewise in connection with his practice elsewhere. Nor, continued the court, do the highly commendable charitable acts on the part of the individual physicians and surgeons who occupy offices in the clinic building inure to the clinic in such a way as to constitute it a charitable institution within the purview of the Arizona statutes. It cannot be said that the building and equipment of the clinic are used for charitable purposes, nor can it be said that they are not used for profit. Whether or not profit is in reality derived from the business there conducted is beside the question. The test is whether or not the building and equipment are used in an effort to derive a profit therefrom, if possible. The evidence conclusively shows that the building and equipment of the clinic are being used by those who rent space therein in connection with the practice of their professions for the very obvious purpose of deriving a profit therefrom.

An educational institution, the court said, has been judicially defined as "one which teaches and improves its pupils; a school, seminary, college or educational establishment." The court could find no support for the contention that the property of the clinic was being devoted to educational uses or purposes in such a way or to such an extent as to render it exempt from taxation or that such property was being used for purposes of scientific research. The evidence did disclose that some scientific research had been undertaken by those connected with the clinic; but whatever may have been done in that respect, the court said, was merely incidental to the general activities of the clinic and was not such as to establish it as an institution for scientific research not conducted for profit. The Supreme Court of Arizona concluded, therefore, that the real and personal property owned by the clinic was not exempt from taxation and the judgment of the trial court was affirmed.—*Lois Grunow Memorial Clinic v. Oglesby (Ariz.), 22 P. (2d) 1076.*

Hospitals, Charitable: Liability for Burn with Hot Water Bottle.—A hospital conducted for benevolent and charitable purposes is not liable to a patient for the negligence of its servants and employees, unless it is shown that the hospital was guilty of negligence in the employment or retention of the offending employees or servants. A charitable hospital, however, may be liable for the injuries inflicted on an employee arising out of and in the course of his employment with the hospital. In the present case the plaintiff, a patient in the hospital, received a burn on her leg from a hot water bottle placed in the bed, apparently by hospital nurses. She sued the defendant hospital, an institution organized and operated for charitable purposes. The trial court directed a verdict for the hospital. In affirming the judgment based on the directed verdict the court of civil appeals of Texas said that, while the evidence was sufficient to justify submission to the jury of the issue of negligence on the part of the nurse, there was no evidence warranting the conclusion that the hospital failed to prescribe proper rules of government or was negligent in the selection or retention of the offending nurses.—*Steele v. St. Joseph's Hospital (Texas), 60 S. W. (2d) 1083.*

Privileged Communications: Fact of Medical Attendance Not Privileged.—Section 14216, Compiled Laws of Michigan, 1929, provides that no licensed physician shall be allowed, without his patient's consent, to disclose in court any information which he may have acquired in his professional character in attending any patient, which information was necessary to enable him as a physician to prescribe for such patient. This statute, said the Supreme Court of Michigan, was enacted to prevent the abuse of the confidential relation existing between the physician and his patient and is for the patient's protection. It covers information acquired by observation while the physician is in attendance on his patient, as well as communications made by the patient to him. Consequently, in an action to enforce payment under an insurance policy, it was proper for the trial court to refuse to permit physicians who treated the insured to testify with respect to the insured's ailment and to restrict their testimony to the fact merely that they had treated the insured.—*McKinney v. Liberty Life Ins. Co. of Illinois (Mich.) 248 N. W. 881.*

Society Proceedings

COMING MEETINGS

Alabama, Medical Association of the State of, Birmingham, April 17-19. Dr. D. L. Cannon, 519 Dexter Avenue, Montgomery, Secretary.

American Association of Anatomists, Philadelphia, March 29-31. Dr. George W. Corner, University of Rochester School of Medicine, Rochester, N. Y., Secretary.

American Association of Pathologists and Bacteriologists, Toronto, Canada, March 29-30. Dr. Howard T. Karsner, 2085 Adelbert Road, Cleveland, Secretary.

American College of Physicians, Chicago, April 16-20. Mr. E. R. Loveland, 133 South 36th Street, Philadelphia, Executive Secretary.

American Laryngological, Rhinological and Otological Society, Charleston, S. C., April 3-5. Dr. Robert L. Loughran, Bridgewater, Conn., Secretary.

American Physiological Society, New York, March 28-31. Dr. Frank C. Mann, Mayo Clinic, Rochester, Minn., Secretary.

American Society for Experimental Pathology, New York, March 28-31. Dr. C. Phillip Miller, Jr., 950 East 59th Street, Chicago, Secretary.

American Society of Biological Chemistry, New York, March 28-31. Dr. H. A. Mattill, Chemistry Building, State University of Iowa, Iowa City, Secretary.

Arkansas Medical Society, Little Rock, April 16-18. Dr. W. R. Brooksher, 602 Garrison Avenue, Fort Smith, Secretary.

Federation of American Societies for Experimental Biology, New York, March 28-31. Dr. Frank C. Mann, Mayo Clinic, Rochester, Minn., Secretary.

Louisiana State Medical Society, Shreveport, April 9-12. Dr. P. T. Talbot, 1430 Tulane Avenue, New Orleans, Secretary.

Southeastern Surgical Congress, Nashville, Tenn., March 5-7. Dr. B. T. Beasley, 1019 Doctors' Building, Atlanta, Ga., Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Periodicals are available from 1925 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American J. Obstetrics and Gynecology, St. Louis

26: 627-788 (Nov.) 1933

*Granulosa Cell Tumors of the Ovary. Margaret Schulze, San Francisco. —p. 627.

Problem of Irregular Menstruation. C. F. Fluhmann, San Francisco. —p. 642.

*Analysis of Five Hundred and Seventy-Five Cases of Eclamptic and Preeclamptic Toxemias Treated by Intravenous Injections of Magnesium Sulphate. E. M. Lazard, Los Angeles.—p. 647.

Hemorrhage Following Cesarean Section. J. M. Slemons, Los Angeles. —p. 656.

Nicotine in Breast Milk. W. B. Thompson, Los Angeles.—p. 662.

*Treatment of Prolapsus Uteri, with Especial Reference to the Manchester Operation of Colporrhaphy. W. F. Shaw, Manchester, England.—p. 667.

Prevention of Cancer of Cervix Uteri. H. S. Crossen, St. Louis.—p. 686.

Occipitoposterior Position: Method of Management, with Analysis of Nine Hundred and Seventy-Six Cases. G. C. Melhado, Montreal.—p. 696.

End-Results in Treatment of Pelvic Infection. A. H. Aldridge, New York.—p. 705.

Breech Deliveries, with Reference to X-Ray Measurements of Fetus and Maternal Pelvis. T. R. Goethals, Boston.—p. 715.

The Alleviation of Pain in Obstetrics. J. H. Moore, Grand Forks, N. D.—p. 729.

Granulosal Cell Tumors of the Ovary: Report of Two Cases. E. F. Daily, Chicago.—p. 733.

Internal Outlet Pelvimeter. S. Hanson, Stockton, Calif.—p. 736.

Self-Retaining Vaginal Speculum. G. S. Beardsley, Eugene, Ore.—p. 739.

Granulosa Cell Tumors of the Ovary.—According to Schulze, granulosa cell tumors of the ovary are frequently mistaken for medullary carcinoma, or for sarcoma or endothelioma. There are three main histologic types, the folliculoid, the cylindromatoid and the sarcomatoid. Frequently, two or all three of these types are found in different areas of the same growth. The clinical diagnosis may be easy before puberty or after the menopause but is difficult during active sexual life. A careful study of the patient from the endocrine standpoint will prove of great aid in the preoperative diagnosis of these cases, as well as in the postoperative prognosis. There is definite evidence that these tumors elaborate the ovarian follicular hormone and possibly, in some cases, the lutein hormone also. It is probable that the follicular hormone tests will become as important for these cases as is the Aschheim-Zondek test for chorionepithelioma. These tumors are usually unilateral and comparatively benign, and simple excision of the tumor is ordinarily curative. Therefore it is most important to make a preoperative or at least an operative diagnosis, as this permits conservative treatment in the case of young women. In women past the menopause, the complete removal of the pelvic organs is preferable if the patient is a good operative risk. In the rare cases in which complete removal of the tumor is not possible, postoperative radiotherapy will probably increase the chances for cure.

Eclampsia Treated by Injections of Magnesium Sulphate.—Lazard discusses the intravenous magnesium sulphate treatment of 575 cases of preeclamptic toxemias and eclampsias, of which 371 were preeclamptic and 225 convulsive toxemias. He concludes that, in view of the varied etiologic factors which may produce the eclamptic syndrome, it is in all probability impossible ever to obtain a specific cure for eclampsia. The objectives of treatment in the preeclamptic state should be (1) to overcome the effects of the toxemia by sedation and elimination, (2) to remove as much work as possible from the embarrassed emunctories by proper regulation of the diet, with particular reference to balancing the fluid intake with the output, and (3) to terminate the pregnancy as conservatively as possible, when there is no proper response to treatment, before the onset of convulsions. The chief objective of treatment of the eclamptic patient should be the control of the convulsions and the protection of the patient against accidents during the convulsions and coma; surgical termination of the pregnancy during the eclamptic attack is justified only in patients in labor who present some urgent obstetric indication. The necessary sedation and elimination is best secured by intravenous magnesium sulphate in sufficient dosage, aided by intravenous injections of dextrose. The gross mortality for the author's entire series, preeclamptic and eclamptic patients, was 5.9 per cent. The gross mortality for the active eclamptic patients was 13.33 per cent, and the corrected mortality 9.5 per cent.

Treatment of Prolapse of the Uterus.—Shaw states that a combination of anterior and posterior colporrhaphy with amputation of the cervix is the best method of treatment for all cases of prolapse of the uterus. This operation is the best for all patients having this condition, whether young or old, parous or nulliparous. In the author's series of 549 cases, 529 (95.35 per cent) were cured. This operation is not a cause of trouble in subsequent labors. The prolapse may recur after subsequent labors, but in less than 25 per cent of cases. It is necessary to combine an abdominal operation with the colporrhaphy only in those rare cases in which practically no muscular tissue is found in the pelvic floor. The author resorted to this procedure in only two cases.

American Journal of Public Health, New York

23: 1115-1222 (Nov.) 1933

America's Contributions and Problems in Public Health. J. A. Ferrell, New York.—p. 1115.

The Work of Walter Reed and His Associates of the Medical Department of the United States Army. R. U. Patterson, Washington, D. C.—p. 1127.

Story of the Epidemic of Encephalitis in St. Louis. J. F. Bredeck, St. Louis.—p. 1135.

Epidemiology of Encephalitis, with Especial Reference to the 1933 Epidemic. J. P. Leake, Washington, D. C.—p. 1140.

Types of Epidemic Encephalitis: Comparison of the Cases Seen in St. Louis in 1933 with Those Seen in New York City. Josephine B. Neal, New York.—p. 1144.

Production of Antitoxins by Means of Bacteriophage. N. W. Larkum, Lansing, Mich.—p. 1155.

The Need of an Index Statisticus. A. W. Hedrich, Baltimore.—p. 1159.

"Missed" Epidemics of Septic Sore Throat. P. B. Brooks, Albany, N. Y.—p. 1165.

Preservation of Milk Samples with Brilliant Green for Streptococcus and Abortus Examination. C. S. Bryan, East Lansing, Mich.—p. 1182.

Automatic Pipet Washer. Ellen Howell and Fannie Mae Frank, Montgomery, Ala.—p. 1186.

American Review of Tuberculosis, New York

28: 537-710 (Nov.) 1933

Bionomics of Families Attending a Tuberculosis Dispensary: I. General Characteristics, with Especial Reference to Housing and Economic Status. Persis Putnam.—p. 537.

Id.: II. Dispensary Attendance and Diagnosis of Family Population. Persis Putnam.—p. 573.

Id.: III. Tuberculosis Morbidity and Mortality Among Italians and Hebrews. Persis Putnam.—p. 591.

Further Studies on Incidence of Tuberculous Infection in Some Rural Communities of the South. J. D. Aronson, Philadelphia.—p. 617.

Incidence of Tuberculosis in Families of Group of Sanatorium Patients. Eloise Haywood, W. H. Morriss and G. C. Wilson, Wallingford, Conn.—p. 637.

Prognosis of Noncavernous Phthisis, with Especial Reference to Size and Quality of Lesions Shown by X-Ray: Analysis of Three Hundred and Sixty-Five Cases. H. L. Barnes, Wallum Lake, R. I.—p. 660.

Vaccinating Property of Dissociated Heat-Killed S Tubercle Bacilli: Comparison with That of B C G and Living Human Tubercle Bacilli in the Rabbit. W. B. Soper, L. K. Alpert and M. J. Adams, New Haven, Conn.—p. 667.

*Differential Diagnosis of Intestinal Tuberculosis. H. Gauss, I. Singerman and Louisa T. Black, Denver.—p. 684.

*Effect of Viosterol (Vitamin D) and Tuberculin on Healing of Tuberculous Lesions in Guinea-Pigs. E. C. de Savitsch, Virginia E. Trevorrow, W. C. Black and R. C. Lewis, Denver.—p. 699.

Diagnosis of Intestinal Tuberculosis.—Gauss and his associates state that there are no pathognomonic signs of intestinal tuberculosis. The high incidence of intestinal tuberculosis reported by pathologists includes a considerable number of terminal lesions and is to be differentiated from clinical tuberculosis which produces morbidity. The diagnosis is suggested by the failure of any patient to make satisfactory progress

when the pulmonary lesion is quiescent or improving. The common symptoms of intestinal tuberculosis are diarrhea, abdominal pain, abdominal tenderness, abdominal rigidity and cramps after eating. The roentgen evidence of intestinal tuberculosis includes the presence of spastic filling defects in the ascending colon, hastened emptying time of the colon, dilatation and segmentation of the small intestine, ileac stasis and/or gastric retention. When a person presents some of the signs and symptoms or roentgen evidence and is known to have pulmonary tuberculosis, a clinical diagnosis of intestinal tuberculosis may be made. However, in adults in the absence of pulmonary tuberculosis, one would hesitate to diagnose intestinal tuberculosis. Since the direct diagnosis is based largely on evidence of hypermotility and ulceration of the intestinal tract, the differential diagnosis must be made from pathologic states that give rise to hypermotility or ulceration of the intestinal tract, which include protozoal infection, bacterial infection of the colon, tumors of the intestine, disorders in the formation, position or configuration of the colon, appendicitis, digestive, nutritional, rectal and endocrine disorders, blood dyscrasias, cardiorenal disease, industrial poisons and surgical complications. The authors report a study of 125 patients in a tuberculosis sanatorium who presented gastro-intestinal problems. These were classified under twenty-seven different clinical entities. The nontuberculous states are far in excess of the tuberculous states, being in the approximate ratio of 5:1. The majority of gastro-intestinal problems encountered among patients in a tuberculosis sanatorium are nontuberculous rather than tuberculous. Postmortem examinations indicate a reasonable agreement between clinical and postmortem diagnoses. Intestinal tuberculosis was found principally in patients having far advanced pulmonary tuberculosis.

Viosterol and Tuberculin in Healing of Tuberculous Lesions.—De Savitsch and his associates observed that the use of a combination of viosterol and tuberculin in the treatment of moderately advanced tuberculosis in guinea-pigs gives definitely beneficial results, as judged by longevity, the degree of tuberculous involvement and the amount of fibrosis. The optimal effect of the treatment is apparently obtained when the viosterol and tuberculin are given simultaneously rather than when one precedes the other by forty-eight hours. The average life span of animals receiving simultaneous treatment with viosterol and tuberculin is markedly increased as compared with that of the tuberculosis controls or of the tuberculous animals treated with viosterol alone or tuberculin alone. The average degree of tuberculous involvement in animals receiving simultaneous treatment with viosterol and tuberculin and in those treated with viosterol followed in forty-eight hours by tuberculin is considerably less than that of the controls or of the animals receiving tuberculin followed in forty-eight hours by viosterol. The average amount of fibrosis in animals receiving the combined treatment of viosterol and tuberculin is definitely greater than that of the controls.

Archives of Pathology, Chicago

16: 611-768 (Nov.) 1933

*Bone Marrow in Agranulocytosis (Pernicious Leukopenia). R. H. Jaffé, Chicago.—p. 611.
Cerebral Aneurysms. C. R. Tuthill, Buffalo.—p. 630.
Extramedullary Hematopoiesis in a Retroperitoneal Tumor. J. L. Blaisdell, Toronto.—p. 643.
*Malignant Neurinoma (Schwannoma) with Epithelial Elements. W. W. Brandes, Dallas, Texas.—p. 649.
Compensatory Hypertrophy of Thyroid Gland in Guinea-Pigs: Effect of Potassium Iodide and of Anterior Lobe Pituitary Extract. Elizabeth Moore, St. Louis.—p. 657.
Peroxidase Activity of Hematin. C. A. Johnson, Chicago.—p. 667.

Bone Marrow in Agranulocytosis.—Jaffé discusses the histologic changes of the bone marrow in nine cases of agranulocytosis. Five of the cases belong to the group of the so-called idiopathic form. Two seemed to have developed during antisyphilitic treatment, while the remaining two proved to be cases of prolonged Streptococcus viridans septicemia. In agranulocytosis the essential pathologic process is a disintegration of the specific granules of the myelocytes, which is followed later by pyknosis of the nucleus and death of the cells. Because of the disappearance of the granulation, the myelocytes lose their characteristic appearance. The degeneration of the myelocytes is sometimes preceded by proliferation. In a considerable number of cases of agranulocytosis the giant cells of the bone marrow show signs of proliferation and degeneration, which suggest relations to the other forms of regressive blood dyscrasia, in particular to aleukia haemorrhagica. The changes of the bone marrow indicate that agranulocytosis is a symptom complex rather than a disease entity.

Malignant Neurinoma (Schwannoma) with Epithelial Elements.—Brandes reports the case of a solitary tumor ocurring in the thigh with many features similar to schwannomas. The clinical features were severe pain in the thigh of a duration of five months and rapid increase in the size of the tumor. Histologic study indicated that epithelial-like structures were the most important elements of the tumor and that they, in part at least if not entirely, gave rise to the stroma. The rapid growth and the associated degeneration were probably important in the production of metastases.

Archives of Surgery, Chicago

27: 817-978 (Nov.) 1933

*Spontaneous Renal and Ureteral Fistulas. C. C. Higgins and N. F. Hicken, Cleveland.—p. 817.
Effect of Complete and Partial Starvation on Rate of Fibroplasia in the Healing Wound. E. L. Howes, H. Briggs, R. Shea and S. C. Harvey, New York.—p. 846.
Spastic Paraplegia in Achondroplasia. E. Freund, Iowa City.—p. 859.
*Intussusception Associated with Tuberculosis: Case in Adult. E. R. Easton, New York.—p. 868.
Diagnosis and Treatment of Fractured Skulls. L. T. Wright, J. J. Greene and D. H. Smith, New York.—p. 878.
Fibromyoma of the Uterus: Report of Case of a Sixty-Five Pound Solid Fibromyoma, with Review of Large Cystic and Solid Uterine Myomas. J. C. Owings, Baltimore.—p. 897.
Double Gallbladder: Report of Case. S. F. Herrmann, G. S. Hicks and D. L. Martin, Tacoma, Wash.—p. 905.
Pylephlebitis. H. Koster and L. P. Kasman, Brooklyn.—p. 910.
Electrobasographic Method of Recording Gait. R. P. Schwartz, A. L. Heath and J. N. Wright, Rochester, N. Y.—p. 926.
Healing of Fractures and Bone Defects After Venous Stasis. J. A. Key and F. Walton, St. Louis.—p. 935.
*Ribs Overlying Empyema Cavities: Pathologic Study. J. D. Bisgard, Omaha.—p. 941.
Combination Avertin-Ether Rectal Anesthesia: Experiments on Animals. G. H. Hunt, Red Bank, N. J.—p. 960.
Fifty-First Report of Progress in Orthopedic Surgery. J. G. Kuhns, E. F. Cave, S. M. Roberts and J. S. Barr, Boston; J. A. Freiberg, Cincinnati; J. E. Milgram, New York; R. I. Stirling, Edinburgh, Scotland, and P. D. Wilson, Boston.—p. 970.

Spontaneous Renal and Ureteral Fistulas.—Higgins and Hicken present a case each of spontaneous nephrocolic, nephroperirenal, renochylous, ureterovesicoperitoneal and ureteroperiureteral fistula and state that spontaneous renal and ureteral fistulas are the result of advanced kidney disease, such as tuberculosis, nephrolithiasis, pyonephrosis, hydronephrosis or neoplastic disease, and occasionally arise from perinephric abscess secondary to caries of the vertebrae, perityphlic abscess, pelvic disease or peripheral infections. The diagnosis is made on the basis of the clinical symptoms, corroborated by cystoscopic and roentgenographic studies. The most important consideration in the treatment of spontaneous urinary fistulas is prophylaxis, the prevention of advanced kidney diseases to the stage of fistula formation by the use of early corrective measures. Closure of a renal fistula usually requires nephrectomy, as the kidney is so generally diseased that practically no functioning tissue remains. In cases constituting a grave surgical risk, conservative measures are indicated; primary drainage of a perinephric abscess usually results in improvement, so that a nephrectomy may be performed later. The use of indwelling ureteral catheters may facilitate the repair of a ureteral fistula, but usually the kidney is harboring infection which has destroyed the parenchyma to such an extent that its conservation is useless.

Intussusception and Tuberculosis.—Easton suggests that every tuberculous patient be regarded as a potential victim of intussusception and his treatment planned with this complication in view. This may mean simply an intensification of the regular treatment for tuberculosis, with special emphasis on overnutrition, protection from overexertion and an increased watchfulness for gastro-intestinal symptoms. In cases of pulmonary tuberculosis it is a complication to be feared, since it may not only lessen the possibility of recovery by interfering with the patient's nutrition but in its acute form is more than

likely to precipitate a fatal termination. On the other hand, pulmonary tuberculosis, with its weakening effect of the gastrointestinal tract, predisposes the patient to intussusception. Undernourishment, through an insufficient or ill balanced diet, is a definite causative factor and perhaps the only one through which effective preventive action may be taken. The author reports a case of intussusception in which the immediate cause of death was tuberculous bronchopneumonia, localized peritonitis, necrosis of the ileum and old intussusception. The direct cause of the intussusception could not be determined, as there was no neoplasm or tuberculous ulceration at the site of the lesion.

Ribs Overlying Empyema Cavities.—Bisgard describes the structural changes commonly observed in ribs overlying empyema cavities and the relation of these changes to the parietal pleura and presents certain deductions relative to the pathogenesis of these changes based on clinical, histologic, roentgenographic and experimental data, which indicate that the transformation has been brought about by the inflammatory response or periostitis, which probably is most active during the acute stage of an empyema, and a functional response in which the osteogenic elements of these ribs bring about certain transformations in accord with the principles outlined in Wolff's law. It would appear that the greatest abnormal force acting on these ribs overlying chronic empyema cavities is the centripetal traction of the contracting pleural scar. To resist this force, the transformation of the inner architecture constantly observed in the specimens examined would logically be anticipated.

Journal of Immunology, Baltimore

25: 381-460 (Nov.) 1933

Volume of Precipitate in Precipitin Reactions. F. S. Jones and R. B. Little, Princeton, N. J.—p. 381.
Studies in Microbic Dissociation: I. Effects of Dissociation on Antigenic Behavior of Salmonella and Shigella Cultures. G. M. Mackenzie and Helen Fitzgerald, Cooperstown, N. Y.—p. 397.
Studies on Cultures and Broth Filtrates of Staphylococci: IV. Antitoxin Content of Rabbit Serums Immune to Staphylococcus Toxin and Precipitin Reactions of Such Serums. E. L. Burky, Baltimore.—p. 419.
*Complement Fixation Test in Carcinoma. W. Saphir and Nell Hirschberg, Chicago.—p. 439.
Refractory State as Concerns the Shwartzman Phenomenon: Observations on Potency of Individual Venoms. S. M. Peck, New York.—p. 447.

Complement Fixation Test in Carcinoma.—Saphir and Hirschberg applied the complement fixation test for carcinoma to twenty-seven serums of cancer patients and eighty-two control serums. The tests were positive in 77.7 per cent of the twenty-seven serums and in only one of the eighty-two control serums. A patient having lobar pneumonia gave the positive reaction. The authors are of the opinion that the reaction is of a physiochemical nature due to the influence of the antigen on the serum globulins rather than a specific antigen-antibody reaction. The clinical value of the reaction awaits further observation after refinement and a better understanding of the nature and the limitations of the test. The technic of the complement fixation test for cancer parallels the original Wassermann technic in one-tenth amounts, being a five tube quantitative test with incubation at 37 C.

Journal of Pediatrics, St. Louis

3: 539-678 (Oct.) 1933

Significance of Water Metabolism in Health and Disease. I. McQuarrie, Minneapolis.—p. 539.
Chronic Peptic Ulcer in Childhood. C. S. White, Washington, D. C.—p. 568.
*Serum Albumin and Globulin of New-Born, Premature and Normal Infants. D. C. Darrow and M. Katharine Cary, New Haven, Conn.—p. 573.
Management by Mechanical Respirator of Postdiphtheritic Respiratory Paralysis. J. E. Gordon, D. C. Young and F. H. Top, Detroit.—p. 580.
Neurocutaneous Syndromes in Childhood. H. Schwarz and H. Abramson, New York.—p. 586.
Determining Appropriate Weight for Body Build. Helen Brenton Pryor and H. R. Stolz, San Francisco.—p. 608.
Hereditary Ataxia. A. P. Bloxsom, Houston, Texas.—p. 623.
Virilism and Hypertension in Infancy Associated with Adrenal Tumor. F. Van Der Bogert, Schenectady, N. Y.—p. 629.
*Treatment of Pertussis with Gold Tribromide: Report of Seventy-Five Cases. J. Epstein, New York.—p. 635.

Serum Albumin and Globulin of Infants.—Darrow and Cary determined the serum concentration of total protein, albumin and globulin in twenty new-born, fourteen normal, aged about 5 months, and twenty-six premature infants. They made similar studies in full term and premature infants suffering from various diseases. They found that the total protein is decreased in all infants, the decrease being due chiefly to low globulin. The diminution in globulin is greatest in premature infants. Postmortem serum of small fetuses shows essentially the same albumin-globulin ratio as that of full term infants. Both premature and normal infants may show an increase in globulin during infection. The authors suggest that the low globulin in infants may indicate the lack of the usual stimuli that give rise to globulin production in adults.

Whooping Cough Treated with Gold Tribromide.—Epstein observed that gold tribromide was an effective remedy in cases of whooping cough. Treatment consisted in the oral administration of a solution of gold tribromide in water. The dosage varied with the age of the child and the severity of the paroxysmal cough. Generally, from one-twentieth to one-tenth grain (0.003 to 0.006 Gm.) was given after meals and at midnight. The author found that a solution of gold tribromide in water did not keep well on standing and he now uses elixir gold tribromide (a teaspoonful three or four times a day). In about two thirds of his whooping cough patients, the cough subsided in three weeks; in the others, it abated within from five to seven weeks. In all cases, after a treatment of three or four days with gold tribromide, the cough was less frequent and less distressing, the attacks were shorter and milder, the vomiting ceased and sleep was more restful. There were no recurrences, complications or fatalities in this series of cases. In twenty-five controls who received the usual antipertussis remedies, the cough was frequent and racking and the course of the disease varied from three to four months.

Journal of Urology, Baltimore

30: 499-638 (Nov.) 1933

*Cystoscopic Prostatectomy: Final Report. F. E. B. Foley, St. Paul.—p. 501.
Factors of Safety in Prostatic Resection. G. J. Thompson, Rochester, Minn.—p. 525.
*Two-Way Resection of Very Large Prostates. E. G. Ballenger, O. F. Elder and H. P. McDonald, Atlanta, Ga.—p. 531.
Influence of Type of Current on the Postoperative Complications in Transurethral Surgery. J. R. Caulk and J. F. Patton, St. Louis.—p. 537.
Some Dangers and Difficulties of Transurethral Resection. J. C. Sargent, Milwaukee.—p. 559.
*Carcinoma of the Prostate. J. R. Dillon, San Francisco.—p. 567.
Chronic Prostatitis: Its Relation to Anatomic Changes in Prostate, Prostatic Urethra and Vesical Orifice. D. M. Davis, Phoenix, Ariz.—p. 579.
Primary Carcinoma of Ureter. J. C. Sargent and C. R. Marquardt, Milwaukee.—p. 625.
Rupture of Urinary Bladder from Self Catheterization. C. O. Ritch, Chicago.—p. 631.
Attachments for Converting a Standard Surgical Table into a Table for Perineal Operations. A. B. Cecil, Los Angeles.—p. 635.

Cystoscopic Prostatectomy.—Foley describes a new instrument and method that represent a radical new departure from the punch principle: an electrode projected far beyond the sheath lumen and operated under accurate visual control permits rapid excision of practically any desired extent of the obstructing gland, amounting in fact to "cystoscopic prostatectomy." The radial incisions are made first. In this process, bleeding is controlled by alternating the cutting current with periods of coagulation. Particularly in the bottom of each incision, thorough coagulation should be employed. During operation of the electrode, continuous "down draft" irrigation is used: a brisk stream of fluid is supplied from an irrigating tube surrounding the telescope and opening above the vesical neck with a continuous return flow down the urethra and through the sheath. This carries any bleeding from the incision downward and minimizes interference with vision. By the use of either retrograde or foroblique telescopes in the working element, vision may be had of the incision either on the vesical neck side with the periphery of the gland in view or up through the urethra with the intra-urethral surfaces of the lobes in view. After the radial incisions have been made and the bleeding in each one has been controlled, the sections of gland between them are cut away by rotation of the whole instrument. In making this circular part of the excision, the cutting element describes a conoidal surface of rotation. Except for their rotation in making the circular incision, the sheath and

retrograde telescope remain in fixed position in relation to the vesical neck during the whole procedure and the peripheral part of the enlarged gland is always in the visual field without a change in the magnification, as would occur if there were alterations in the level of the objective lens above the vesical neck. When the foroblique telescope is used, the lower end of the electrode is at the lower edge of the field and the telescope moves with the electrode, giving vision from down in the urethra upward through the vesical neck with the whole electrode in the field. The author states that, from the cases in which operation has thus far been performed, it appears that, if bleeding in the radial incisions has been adequately controlled, only slight bleeding will occur from the circular or rotating incision. The excised pieces of tissue may be divided into smaller pieces with the electrotome forceps and may be removed from the bladder with the grasping forceps. When the procedure is completed, a 26 F. catheter is fixed in the urethra. The author concludes that in the hands of the competent cystoscopist a majority of prostatic obstructions can be relieved by cystoscopic prostatectomy or by transurethral prostatic resection and that removal of the gland by a major operation is justified only in a limited number of cases. A comparison of transurethral resection with suprapubic prostatectomy in identical groups of material has shown that the clinical results with resection are as good as those obtained by suprapubic operation, while the postoperative mortality is less.

Two-Way Resection of Large Prostates.—Ballenger and his associates present a two-way resection method, which is particularly indicated when large vesical calculi or diverticula coexist with massive prostatic hypertrophy. With the patient in the Trendelenburg position, retractors are placed so as to hold the bladder away from the protruding mass. A large curved Cameron light is used. A tube, ordinarily used in tonsil operations, is attached to the suction apparatus employed to remove urine and blood. When the protruding prostate is exposed, pieces are resected, with suitable loops, until the intravesical mass is removed. Bleeding is stopped by fulguration as the resection proceeds. After sufficient tissue has been taken away and all bleeding stopped, a large retention catheter is placed in the incision, which is closed as usual, a Penrose drain being left in the prevesical space. Within a week or so, under low spinal anesthesia, preferably with a brand of procaine hydrochloride containing strychnine sulphate, transurethral resection is carried out. The suprapubic mushroom catheter is clamped and pulled up until its head is against the anterior wall of the bladder. The subsequent management and time of removing the suprapubic tube varies according to the condition of the patient and complicating factors. Less than 5 per cent of prostates require this method, as transurethral resection in one or two stages can be done by competent resectionists in more than 95 per cent of obstructions.

Carcinoma of the Prostate.—Dillon outlines a procedure for carcinoma of the prostate in which the prostate is exposed through the perineum by the usual technic and enucleated in its entirety by an inverted V incision in the prostatic capsule, the entire prostatic urethral mucosa being removed from the membranous urethra to the neck of the bladder. In the advanced cases in which the prostatic capsule is infiltrated, the growth is shaved off, a sufficient thickness of capsule being left to form a new prostatic urethra. In a few cases with marked infiltration into the seminal vesicles, the growth was partially removed by following the ejaculatory ducts in the posterior flap, but it was found that this procedure caused delayed healing and closing of the perineum, owing to the large cavity produced. Infiltration around the neck of the bladder should be carefully trimmed off and any induration in the region of the middle lobe or suggestion of a median bar should be removed. Bleeding of the neck of the bladder is controlled by interrupted catgut ligatures. Two rubber tubes containing 50 mg. of radium each, in four 25 mg. ampules spaced according to the size of the prostatic capsule, are placed in the regions of each lateral lobe, on each side of the perineal drainage tube and urethral catheter in the bladder. The posterior flap, containing the posterior lobe, is brought up and sutured at its apex, between the radium tubes. The rectum is separated from the pelvic fascia well below the level of the radium tubes and the space packed with iodoform gauze at least a half inch in thickness, covering the entire prostatic capsule to the membranous urethra. The radium tubes, the bladder drainage tube and the gauze packing are brought out together on the right side of the perineal wound. The radium tubes are left in place from ten to fourteen hours, giving from 1,000 to 1,400 mg. hours of crossfire irradiation to the wall of the bladder round the vesical neck and the posterior flap containing the posterior lobe, as well as irradiating the lateral walls of the prostatic capsule. The author presents this method as a palliative measure that will give the greatest comfort and relief of urinary symptoms for the remainder of their existence in patients suffering from carcinoma of the prostate.

Kentucky Medical Journal, Bowling Green

31: 511-548 (Nov.) 1933

Treatment of Typhoid Fever. J. F. Dunn, Arlington.—p. 512.
Traumatic Injuries to the Spine. F. P. Strickler, Louisville.—p. 516.
Early Diagnosis of Pulmonary Tuberculosis. P. A. Turner, Louisville.—p. 521.
Primary Carcinoma of the Lung. D. B. Harding, Lexington.—p. 524.
Fracture of Humerus Treated with Dr. Hendon's Bone Key: Case Report. W. B. Atkinson, Campbellsville.—p. 526.
Fractures: Fractures of Lower End of Humerus, Diagnosis and Early Treatment. I. A. Arnold, Louisville.—p. 528.
Id.: Complications of Fractures of Lower End of Humerus: Causes and Treatment. W. B. Owen, Louisville.—p. 530.
Id.: Volkmann's Contracture: Its Causes and Treatment. H. Goldberg, Louisville.—p. 531.
Phytobezoar: Case Report. W. E. Fallis, Louisville.—p. 537.
Xeroderma Pigmentosum. W. U. Rutledge, Louisville.—p. 540.
Carcinoma of the Larynx. W. O. Johnson, Louisville.—p. 542.

New England Journal of Medicine, Boston

209: 815-866 (Oct. 26) 1933

Isolation from Case of Brill's Disease of Typhus Strain Resembling the European Type. H. Zinsser and M. Ruiz Castaneda, Boston.—p. 815.
Studies on Tumor Metastasis: IV. Metastases of Cancer of the Stomach. S. Warren, Boston.—p. 825.
Training of Interns in Social Aspects of Medicine. H. A. Derow and Ethel Cohen, Boston.—p. 827.
Orthopedic Treatment of Infantile Paralysis. E. A. Jones, Manchester, N. H.—p. 831.
Diagnosis and Treatment of Multiple Sclerosis. P. de Nicola, Nashua, N. H.—p. 834.
Value of Cod Liver Oil in Treatment of Anemia. A. D. Holmes, Madeleine G. Pigott and L. P. Bowser, Stoneham, Mass.—p. 839.
Progress in Surgery of Sympathetic Nervous System in 1932. J. C. White, Boston.—p. 843.

New York State Journal of Medicine, New York

33: 1249-1306 (Nov. 1) 1933

Apparent Cures of Papillary Carcinomas of Urinary Bladder. J. J. Valentine and J. W. Rogers, New York.—p. 1249.
Noise Deafness in Industry and Environment (Occupational Deafness). J. C. Scal, New York.—p. 1251.
Migraine: Symptom of Focal Brain Edema. F. Kennedy, New York.—p. 1254.
Study of Faintness and Syncope in Association with Cardiovascular Disease. L. F. Bishop and L. F. Bishop, Jr., New York.—p. 1258.
Routine Management of Gastrostomy Patient. W. L. Watson, New York.—p. 1261.
Unfiltered X-Rays and the Ten Milligram Flat Radium Element Applicator in Dermatology. G. M. Mackee, New York.—p. 1266.
Personal Experiences in Prophylaxis and Treatment of Ringworm of Hands and Feet. E. D. Osborne, E. D. Putman and R. J. Rickloff, Buffalo.—p. 1270.
Observations on Effect of Iodine Administration in Cases of Hyperthyroidism. G. M. Goodwin, New York.—p. 1274.

Pennsylvania Medical Journal, Harrisburg

37: 81-198 (Nov.) 1933

Important Applications of Thoracic Surgery. J. Alexander, Ann Arbor, Mich.—p. 81.
Low Back Pain in Adults. J. T. Rugh, Philadelphia.—p. 83.
*Clinical Manifestations of Vitamin B Deficiency in Adults. K. O. Elsom, Philadelphia.—p. 87.
Correction of Postural Defects in Children. D. P. Willard, Philadelphia.—p. 89.
Report of International Congress of Ophthalmology, Madrid, Spain. H. W. George, Middletown.—p. 92.
Etiology and Treatment of Pemphigus. L. G. Beinhauer, Pittsburgh.—p. 95.
"Chronic" Iritis: Rôle of Focal Infection. N. S. Weinberger, Sayre.—p. 98.
Management of Maxillary Sinus Infections. F. E. Magee, Oil City.—p. 102.

Vitamin B Deficiency in Adults.—Elsom presents a case in which definite symptoms followed a voluntary restriction of diet. The symptoms strongly resembled those of pernicious

anemia: marked pallor, glossitis and symptoms and signs of posterolateral sclerosis. The typical observations of pernicious anemia, achlorhydria and anemia were lacking. When liver was administered in a dosage adequate to produce a remission in pernicious anemia there was no response, with the exception of some improvement in the glossitis. When vitamins B_1 and B_2 were administered there was rapid improvement in the fatigue, anorexia, dyspnea, vertigo, paresthesias, edema, glossitis, scaling of the forearms and brittleness of the nails. This improvement began in two weeks and was complete at the end of six. The author concluded that the patient's symptoms and physical signs were due to a deficiency of the vitamin B complex. The improvement of the glossitis during liver therapy is believed to be due to the fact that liver contains measurable amounts of vitamin B_2. The close resemblance of many aspects of this case to the characteristic picture of pernicious anemia suggests some common factor between the two. At no time did the patient show anemia or detectable impairment of gastric secretion. It has been noted that pitting edema of the lower extremities disappeared with vitamin B therapy. The plasma proteins rose to a normal figure regardless of the fact that there was no increase in the protein of the diet. It seemed possible that the vitamins might be responsible either for increased absorption or for increased utilization of protein already present in the diet. This is believed to be important, since it suggested a cause for edema not found in the usual etiologies of cardiac or renal disease, low protein intake, or the failure of the absorption of protein secondary to gastrointestinal disease. Detailed studies are at present under way in an effort to determine the exact explanation for the occurrence of this edema as well as of the symptoms described.

Public Health Reports, Washington, D. C.

48: 1363-1388 (Nov. 10) 1933

Experimental Studies of Natural Purification in Polluted Waters: VIII. Dissolved Oxygen in the Presence of Organic Matter, Hypochlorites and Sulphite Wastes. E. J. Theriault and P. D. McNamee.—p. 1363.

South Carolina Medical Assn. Journal, Greenville

29: 243-266 (Nov.) 1933

Parinaud's Conjunctivitis: Case Report. T. R. Gaines, Anderson.—p. 245.
Postoperative Atelectasis. A. E. Baker, Jr., Charleston.—p. 247.
Chronic Empyema. G. H. Bunch and E. L. Madden, Columbia.—p. 250.
Tuberculin Skin Test. Hilla Sheriff, Spartanburg.—p. 253.

Tennessee State Medical Assn. Journal, Nashville

26: 465-508 (Nov.) 1933

Rat-Bite Fever: Case Report. C. E. James, Memphis.—p. 465.
Fracture of Body of Vertebrae. R. C. Robertson, Chattanooga.—p. 469.
Sarcoma of Kidney in Children. C. F. Clayton, Jr., Knoxville.—p. 475.

West Virginia Medical Journal, Charleston

29: 449-496 (Nov.) 1933

Heart Disease: Digitalis: Its Indications and Contraindications. W. C. Swann, Huntington.—p. 449.
Id.: Bedside Diagnosis of Cardiac Arrhythmias. R. M. Wylie, Huntington.—p. 451.
Id.: Interpretation and Significance of Cardiac Murmurs. F. A. Brown, Huntington.—p. 454.
Practical Value of Information Obtained from Cerebrospinal Fluid Studies. A. A. Wilson, Charleston.—p. 456.
*Effect of Analgesics on Clinical Course of Rheumatoid and Mixed Arthritis: Preliminary Report. W. B. Rawls, B. J. Gruskin and A. A. Ressa, New York.—p. 462.
Healing Gods or Medical Superstition. J. L. Miller, Thomas.—p. 465.
Management of Benign Prostatic Obstruction. H. L. Tolson, Cumberland, Md.—p. 479.
Confessions of an Obstetrician. N. R. Price, Marlinton.—p. 484.

Effect of Analgesics on Arthritis.—The observations of Rawls and his associates indicate that palliation of pain is usually accompanied by unmistakable clinical improvement, as judged not only by the signs and symptoms but also by a reduction in the sedimentation rate and the shift to the left in the nuclear count. In the cases in which these effects were noticed, the authors employed solely as analgesics a combination of magnesium and amidopyrine, as suggested by the work of Barbour and Winter, and amidopyrine, as suggested by Leber.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2: 807-852 (Nov. 4) 1933

Treatment of Acute Head Injuries. G. Jefferson.—p. 807.
Ulcerative Colitis: Survey of Ninety-Five Cases. T. L. Hardy and E. Bulmer.—p. 812.
*Treatment of Chorea by Induced Pyrexia. J. W. Cheetham.—p. 815.
Treatment of Chorea by Induced Pyrexia. H. Fish.—p. 816.
"Bornholm" Disease: Account of a Yorkshire Outbreak. W. N. Pickles.—p. 817.
Primary Thrombosis of Subclavian Vein. C. H. S. Taylor.—p. 818.
Some Observations on Whooping Cough and Its Treatment by Vaccines. R. W. Cockshut.—p. 819.

Treatment of Chorea by Induced Pyrexia.—Cheetham treated four cases of chorea by induced pyrexia. The treatment consisted of the daily intravenous administration, for a period of from seven to ten days, of TAB vaccine in sufficient quantity to produce a temperature of from 103 to 106 F. The vaccine contains 1,000 million Bacillus typhosus, 750 million B. paratyphosus A and 750 million B. paratyphosus B organisms in 1 cc. The initial dose is 0.1 cc. intravenously, which almost invariably produces a satisfactory response. There is a severe constitutional reaction. The patient vomits and develops a peculiarly cyanosed appearance. The choreic movements are markedly increased for the time being. Subsequent doses are increased in accordance with the response to the first injection. An approximate rule is to double the dosage each day. The final dose may be as much as 2.5 cc. Sutton recommends the administration of acetylsalicylic acid and an icebag to the head if the temperature rises above 106 F. With careful attention to dosage, however, this is a rare incident and did not occur at any time in the author's cases. The injection is given in the early afternoon to enable the subsequent reaction to subside before night and thus not to interfere with the child's sleep. The constitutional reaction becomes less marked with each injection, until the final injection produces no obvious reaction apart from the pyrexia. The author observed that the treatment of chorea by artificial pyrexia shortens the duration of choreic movements, does not prevent recurrence and appears to have no beneficial action on rheumatic carditis. Its grave danger lies in the tendency to produce a false impression of cure by abolishing the movements, which in themselves are merely a symptom, when serious changes may be occurring in the heart. The author does not allow a child with acute rheumatism out of bed as soon as the joint swellings have subsided under the influence of salicylates. In the same way it is undesirable to allow a child out of bed two weeks after the onset of an attack of chorea unless it can be conclusively proved that the treatment which cuts short the choreic movements also cuts short any accompanying carditis. When these facts are borne in mind, it is clear that the use of artificial pyrexia has a limited place in the treatment of chorea.

Lancet, London

2: 1021-1074 (Nov. 4) 1933

Conditions of Fetal Respiration. J. Barcroft.—p. 1021.
Carbohydrate in Relation to Treatment of Thyrotoxicosis. N. Kletz.—p. 1024.
Peroneal Muscular Atrophy in Five Generations. I. Gordon.—p. 1026.
*Aural Vertigo Amenable to Treatment by Ossiculectomy: Cases. J. Dundas-Grant.—p. 1029.
Duct Papilloma of Breast: Series of Cases. Elizabeth H. Lepper, Alfreda H. Baker and Helena Hartog.—p. 1031.
Recent Advances in Treatment of Lupus Vulgaris. Evelyn M. Holmes.—p. 1033.

Aural Vertigo Treated by Ossiculectomy.—Dundas-Grant is convinced that in suitable cases ossiculectomy is of the utmost value. It does not do away with the necessity for the radical mastoid operation, but in certain cases presenting symptoms indicating radical procedure the operation of ossiculectomy has relieved these symptoms and shown the radical operation to have been avoidable. Ossiculectomy should be considered before such operations as obliteration of the labyrinth or section of the eighth nerve on account of vertigo are undertaken. Often the practiced eye will detect changes attributable to retractions of the membrane or fixation of parts produced by the residue of inflammation in the middle ear. In some of the twelve cases that the author describes the ossicles obstructed

the outlet of the attic and prevented the escape of thickened discharges or cholesteatomatous collections and in others their fixation led to immobility of an otherwise mobile stapes. In the former the removal of the ossicles permitted the free escape of contents of the attic, with relief from vertigo and headache and, to some extent, from dulness of hearing. In the latter the restored mobility of the stapes provided the normal safety valve for variations of intralabyrinthine tension, with a disappearance of the distressing vertigo. He concludes that, in the normal subject, such removal would probably reduce the hearing to about 6 feet for the soft whisper, a useful but a much diminished amount of hearing power. In a patient having a greater degree of hearing, ossiculectomy would therefore be undesirable unless called for by a major disability, the removal of which rendered a moderate reduction of hearing a matter of relatively minor importance. In most of the cases in which ossiculectomy is required the hearing power is less than this and the operation, while making it no worse, sometimes makes it better than before, as in one of the author's cases.

Quarterly Journal of Medicine, Oxford

2: 463-588 (Oct.) 1933

Hypertensive Cerebral Attack. D. McAlpine.—p. 463.
*Action of Atropine in Complete Heart Block. A. R. Gilchrist.—p. 483.
*Action of Adrenalin in Complete Heart Block. A. R. Gilchrist.—p. 499.
Edema in Nephritis. J. B. Rennie.—p. 521.
Calcification of Kidneys in Pyloric Stenosis. A. M. Cooke.—p. 539.
Pituitary Secretion in High Blood Pressure. C. Hoyle.—p. 549.
*Diagnosis of Anemia, with Especial Reference to Cell Volume and Blood Iron Estimation. H. W. Fullerton, A. Lyall and L. S. P. Davidson. —p. 561.

Action of Atropine in Complete Heart Block.—Gilchrist tested the response of ten persons suffering from complete heart block to the intravenous administration of 1/30 grain (0.002 Gm.) of atropine sulphate. Repeated electrocardiograms, taken at intervals before and after the injection, demonstrated that this drug produced an acceleration of the ventricular rate. The dose of atropine was sufficient to produce almost complete paralysis of the vagus. The maximal increase in the ventricular rate was 47 beats per minute, representing a gain of almost 96 per cent over the initial rate. The minimal acceleration was 1.2 beats per minute, giving an increase of 5.4 per cent. In only one case was the gain after atropine within the maximal range recorded under similar resting conditions. At low initial rates, atropine produces but little acceleration. The coefficient of correlation between the rate before atropine and the amount of ventricular acceleration produced by it is + 0.97. The use of atropine as a means of distinguishing the bradycardia of complete heart block from that of other causes is therefore unreliable. Further work must be done on this subject with the object of determining the precise nature of the response to atropine in those cases of slow heart action in which complete heart block is not present. To obtain a decided effect on the ventricular rate, it is necessary to use an amount of atropine approaching the full paralyzing dose; 1/30 grain of atropine given intravenously in 1 cc. of physiologic solution of sodium chloride was found to be sufficient. The auricular range after atropine does not bear any relation to the ventricular. The amount of auricular acceleration varies irregularly in each individual. The auricular response probably reflects no more than the degree of vagal tone existing at the moment of injection. The nature of the ventricular response suggests that the amount of acceleration is determined by the inherent rhythmicity of the specialized tissue at the center of impulse production. The author suggests that, when the lesion producing the block is situated in the uppermost part of the conducting tract, a greater response will occur after atropinization than when the center of impulse production lies at a lower level in the specialized tissues. As a converse, vagal stimulation is more likely to be effective in slowing the idioventricular rate when the center of impulse production lies high in the conducting tract.

Action of Epinephrine in Complete Heart Block.—Gilchrist observed the reaction of twelve patients suffering from complete heart block to repeated subcutaneous doses of epinephrine. Acceleration of auricles and ventricles may occur within two to four minutes of the injection. The amount of ventricular acceleration induced bears a striking relationship to the rate existing immediately before the injection. High initial rates are followed by little or no gain in rate, slow rates by pronounced acceleration. The gain in rate after 0.25, 0.75 and 1 cc. of epinephrine is similar to that recorded after 0.5 cc. In other words, for a given initial rate 0.25 cc. of epinephrine will produce as much acceleration as a dose four times that amount. The independence of the size of the dose and the response recorded suggest that a surface action is involved and that epinephrine is being adsorbed on some (? enzyme) surface, as an essential condition of its action. The observation that the initial rate determines the degree of acceleration finds support in blood pressure studies. It has not been found possible to demonstrate as close a correlation between the initial auricular rate and its increment after epinephrine as that observed in the case of the ventricles. The auricular response is modified to some extent, particularly in those cases in which the magnitude of the ventricular response is maximal; that is, when the initial ventricular rate is relatively low. It would appear probable that reflex vagal influences, induced by a marked ventricular reaction, limit the auricular response. The amount of limitation is apparently determined largely by the initial ventricular rate. The reaction to a subcutaneous dose of epinephrine varies as much in complete heart block as it does in the normal beating heart. The maximal auricular and ventricular reactions are not necessarily synchronous. As a general rule, the auricles attain the height of their reaction before the ventricles have completed their acceleration. An increased frequency of both chambers of the heart persists after the blood pressure rise has returned to its preexisting level. No untoward symptoms resulted from the employment of the drug. Reactions differing from the foregoing were encountered in four patients. One suffered from intermittent complete block. When tested during complete block, no change occurred in the rhythm, but a branch defect changed from one side of the heart to the other. Tested during 2:1 rhythm, complete block was induced. The direction of the main ventricular deflection varied according to the presence or absence of conduction through the main stem of the bundle. During half-rhythm the ventricular complex in lead 3 was directed downward, whereas during complete dissociation its direction was upward.

Anemia, Cell Volume and Blood Iron Estimation.—To compare the value in diagnosis of the color index, cell volume index and iron index, Fullerton and his associates made a full hematologic investigation consisting of 129 observations in pernicious anemia, fifty-seven in idiopathic microcytic anemia, forty-one in posthemorrhagic anemia and fifty-seven in other anemias. They observed that in all types of anemia and at all stages the indexes run parallel to one another. The cell volume index, and particularly the iron index, gave higher readings than the color index. The advantages claimed for these methods in the diagnosis of macrocytic hyperchromic anemia are confirmed, but they are offset by an increased difficulty in the diagnosis of microcytic hypochromic anemia. Accordingly, the color index, if accurately estimated, still remains a simple and satisfactory procedure for routine diagnostic purposes; but for difficult cases and research work the addition of one or both of the subsidiary methods affords a valuable check. The authors present the results of investigations into cell diameter, blood pigments and iron metabolism.

Japanese Journal of Obstetrics and Gynecology, Kyoto

16: 281-430 (Aug.) 1933

Elimination of Follicular Hormone in Urine of Man: I. Determination of Hormone in Urine of Normal Sexually Mature Female Persons and in Patients Having Hyperplasia of the Uterus. J. Kosakaé, T. Ohga and S. Okamoto.—p. 282.
Id.: II. Determination of Hormone in Urine of Patients Having Cancer of the Uterus. J. Kosakaé, T. Ohga and S. Okamoto.—p. 299.
Comparative Microscopic Anatomy of Ovarian Ligament in Man and in Mammals. Y. Shimasaki and H. Yamada.—p. 311.
Study on So-Called Anterior Lobe Hormone of the Pituitary Body. K. Mizuno.—p. 332.
Effects of Diathermic Heat to Animal Cancer. T. Fuke.—p. 344.
Blood Sugar in Normal and Cancerous Albino Rats Heated with Diathermy. T. Fuke.—p. 353.
Effects of Diathermy to the Healing of Wounds. T. Fuke.—p. 357.
Effects of Narcosis to Quantity of Glutation in Tissues, Organs and Blood. I. Kushiyama.—p. 360.
Influence of Roentgen Irradiation on Uropoietic System: Part III. Experimental Study on Radiosensibility of Kidney. S. Takita.— —p. 365.

Archives Med.-Chir. de l'App. Respiratoire, Paris

8: 385-476 (No. 5) 1934

*Clinical and Pathogenic Considerations on Ayerza's Black Cardiac. M. R. Castex, E. L. Capdehourat and R. L. Repetto.—p. 385.
Contribution to Study of Pathogenesis of Pleuropulmonary Perforations. R. Jeanneret and W. Froehlich.—p. 408.
Pleural Calcifications in Fifty Roentgenologic Observations. Stuhl, Camendron and P. Marquès.—p. 413.
Place of Collapse Therapy in Treatment of Pulmonary Suppurations. H. Costantini and E. Curtillet.—p. 427.
Formation of Free Intrapleural Body After Section of Adhesions by Method of Jacobaeus. J. Stéphani, T. Stéphani and R. Kirsch.—p. 436.

Ayerza's Disease.—Castex and his co-workers state that chronic bronchopulmonary lesions are of greater importance in the genesis of Ayerza's disease than lesions of the pulmonary artery. The disease may occur with or without arteriosclerosis of the pulmonary artery, but the sclerotic lesions of the pulmonary circulation are important as evolutive factors because, by increasing the work of the heart, they accelerate its insufficiency. The disease cannot develop if the patient is not previously affected by a protracted bronchopneumonia, but the clinical syndrome is seldom observed in these conditions, whether associated or not with sclerotic lesions of the pulmonary artery. The basic lesion, a bronchopneumopathy of any kind, must lead to such a deficiency of alveolar air content as to create a reduction of at least 15 per cent of oxygen in order to produce cyanosis as the first stage of the evolution of the disease. It is also necessary that the individual possess a bone marrow capable of reacting by polyglobulism to direct or indirect stimuli, constituting a compensatory mechanism through which the organism may secure sufficient oxygen for the needs of the tissues despite the fall in the alveolar tension of this gas. Patients whose erythropoietic organs are incapable of offsetting the bronchopulmonary process inducing anoxemia cannot present the clinical picture of this disease. This explains why the majority of patients are afflicted with the disease in early youth rather than in advanced age. Thus, despite the frequency with which the protracted bronchopneumonic diseases are observed in elderly patients, the pathologic syndrome of black cardiac is seen only exceptionally. The constitutional peculiarities explain why, in spite of similar pathologic conditions, so few persons develop the syndrome.

Semana Médica, Buenos Aires

40: 1837-1944 (Dec. 14) 1933

Supracondylar Fracture of Elbow in Children: Treatment and Results. R. Finochietto and A. Llambías.—p. 1837.
Spinal Anesthesia in Vaginal Cesarean Section in Pyelonephritis: Case. T. A. Chamorro.—p. 1860.
*Paroxysmal Tachypnea of Decubitus Due to Tuberculous Adenomediastinitis: Case. R. Cibils Aguirre and J. L. Araoz.—p. 1863.
Biologic Reactions in Early and Differential Diagnosis of Pregnancy. P. E. Borrás.—p. 1874.
Infectious Endocarditis Caused by Enterococci: Case. P. Cossio, I. Berconsky and A. Fisher.—p. 1911.
Extraperiosteal Fibrosarcoma: Case. R. C. Ferrari.—p. 1914.
Diiodotyrosine in Hyperthyroidism. D. Boccia and A. E. Torre.—p. 1917.
Urban Brucella Infection in Argentina. E. A. Molinelli.—p. 1919.
Ultraviolet Rays in Erysipelas of Children. G. A. Schiavone.—p. 1923.

Paroxysmal Tachypnea of Decubitus.—Cibils Aguirre and Araoz report the case of a girl, aged 9, in whom decubitus caused instantaneously a crisis of paroxysmal tachypnea and bradycardia. The respiratory rhythm before and after the crisis was normal but was accelerated in decubitus to from 120 to 150 respirations a minute. The pulse rate which before the crisis was 120 a minute was retarded to between 78 and 86 pulsations during decubitus. The disappearance of the crisis was as rapid when the child sat up as its appearance had been when she reclined. During sleep the respiratory movements were from 24 to 28 a minute and the pulse was 70. Except for a slight corticopleuritis there were no other pulmonary and bronchial symptoms. A roentgenographic study of the thorax showed tracheobronchial adenomediastinitis, which the authors diagnosed as being of tuberculous origin, based on the positive results of the Mantoux test, on the presence of corticopleuritis and on the fact that the child lived in intimate contact with her sister, who died from pulmonary tuberculosis. That the tuberculous adenomediastinitis was the cause of the respiratory and pulse syndrome by a compression of the pneumogastric nerve was proved by the results from the functional tests of the vagosympathetic system, by the symptoms given by the patient and by the symptomatologic exclusion of the sympathetic nerve in its mediastinal course. The authors failed to find any similar case in the modern literature. In the classic literature, however, they found a relation between decubitus and the changes of the respiration and the pulse, explained as being caused by compression of the pneumogastric nerve during decubitus by swollen mediastinal nerves.

Archiv für klinische Chirurgie, Berlin

176: 621-814 (Nov. 10) 1933. Partial Index

Short Circuiting and Plastic Operations on Biliary Tracts. O. Hoche.—p. 621.
Treatment of Prolapse of Rectum by Means of Aponeurotic Colopexy. A. G. Radsiewsky.—p. 628.
Use of Oxygen in Treatment of Postoperative Acidosis. C. I. Weinstein and I. G. Turowez.—p. 635.
Electrocoagulation Treatment of Prostatic Hypertrophy. H. Nahrath.—p. 649.
Mechanism of Increase of Antiprothrombin Blood Content in Stasis Icterus. A. Barlik.—p. 656.
*Delayed Callus Formation as Result of Antiseptic Treatment of Wound in Compound Fractures. I. Boerema.—p. 666.
*Claudicatio Venosa Intermittens of Upper Extremity. W. Löhr.—p. 701.
*Symptomatology, Diagnosis and Pathologic Anatomy of Lymphogranulomatosis. Z. W. Mankin.—p. 744.

Delayed Callus Formation Resulting from Antiseptic Treatment of Wound.—Boerema studied the results of treating compound fractures in pigeons and in hens with and without antiseptic solutions, with particular regard to the question of delayed callus formation. He cut across the radius of a pigeon, separated the periosteum, and then held a pledget soaked in a 5 per cent solution of tincture of iodine or a 3 per cent solution of phenol in contact with the fragments for about three minutes. The wound was then closed by suturing. An identical procedure was repeated on the corresponding opposite side without, however, the use of antiseptic solution. Roentgenologic control, as well as histologic studies, demonstrated conclusively a marked delay in callus formation in every bird in which antiseptics were used. In some instances necrosis of soft tissues or of a bone fragment took place. The author believes that retardation of callus formation was due to the effect of antiseptic solutions on the specific bone building tissues, the cambium layer of periosteum and the endosteum. The use of a solution of 3 per cent hydrogen dioxide as well as of iodoform gauze did not have, in his experiments, the effect of delaying callus formation.

Claudicatio Venosa Intermittens of Upper Extremity.—Intermittent claudication of venous origin affecting the upper extremity need not be due to an actual thrombosis of the axillary or the subclavian veins, according to Löhr. He differentiates a special clinical entity in which the syndrome was due to venous stasis. The condition presents an analogy to the intermittent claudication of the lower extremity, with the difference that in the lower extremity muscular activity becomes arrested because of insufficient arterial blood supply, while in the upper extremity the same phenomenon is caused by the inadequate return of the venous blood. Intermittent claudication in the lower extremity does not occur without a simultaneous thrombotic closure of the main vein, while in the upper extremity this is not necessary. Muscular contractions in the lower extremity drive the venous blood toward the heart, while in the upper extremity they retard the return of venous blood. It appears, therefore, that the conditions for the venous return are less favorable in the upper than in the lower extremities. Because of narrowness (in the physiologic sense) of the subclavian vein, it is not necessary, in order to produce venous stasis, for the vein to be obstructed by a thrombus, as hard muscular work may produce it by causing backflow. The functional demands on the lower extremities, however, are so much greater than those of the upper that the actual incidence of the vascular diseases in the former is much greater than in the latter. The immediate relief in the objective and subjective signs and symptoms on the completion of operation is a definite proof of the existenee of types of venous claudication due to minor hindrances of the return flow in the axillary cavity. These types must not be confused with those caused by throm-

bosis of the large veins. The patients operated on make a rapid recovery. For patients not operated on, anatomic restitution and functional recovery are a matter of months, at times of a year. The author believes that the incidence of intermittent claudication due to venous stasis is probably greater than that due to thrombosis of the axillary or the subclavian veins. The most important etiologic factor in this group is an unaccustomed, unusual, prolonged muscular effort, the effect of which is to dilate and overstretch the axillary or the subclavian vein. Among the contributing factors are mentioned enlarged axillary lymph nodes, compression of the dilated vein by fascial strands of the costocoracoid fascia, tumors, subscapular bursa, large callus of a recent clavicular fracture, goiter or lung tumor. The author observed thirteen patients of this type. Four were operated on by him for what was considered classic thrombosis of the axillary vein. No thrombosis was found. The vein in three cases was partly constricted by fascial strands. The differential diagnosis of the two types presents many difficulties. The distended axillary vein may easily suggest a thrombosed vein. However, patients with real thrombosis are usually elderly, either debilitated by malignant disease or presenting a severe trauma and infection. Characteristic for the syndrome described is that the patients are younger persons in the best of health, that the onset is sudden, that they have no fever or infection, and that they show a normal blood count and a negative Wassermann reaction. The patients give a history of prolonged, unaccustomed, hard muscular strain. The condition does not give rise to embolic phenomena and serious complications. Signs of stasis disappear after the development of collateral circulation. The author cites his own four cases and Wulsten's one case as a definite proof of the existence of venous stasis without thrombosis, because in all five the absence of a thrombosis was demonstrated in the course of the operation. Operative treatment is recommended for all cases.

Lymphogranulomatosis.—On the basis of 103 cases of lymphogranulomatosis (Hodgkin's disease) studied at the Leningrad Oncologic Institute, Mankin arrives at the following conclusions: 1. Lymphogranulomatosis is a rather common disease of the reticulo-endothelial system, especially of the portion located in the lymph nodes. 2. The disease presents a symptom complex not present in any other chronic disease of the hematopoietic system. 3. Included in this symptom complex are a progressively increasing lymphopenia, monocytosis and increase in neutrophils, while the colorless blood elements remain unaltered; itching of the skin, prurigo, bronzing of the skin and eczematous eruptions. The temperature curve presents characteristic fluctuations consisting of periodic alternations of high temperatures of an irregular type with afebrile periods. The involved glands are of an irregular consistency, and the skin over them is not adherent or fistulous. The involvement of the lymph nodes is always progressive and not a simultaneous process. The disease runs a severe clinical course with fatal termination on the average after from two to three years. 4. The author differentiates three histologic types: (*a*) the productive inflammatory, (*b*) the hyperplastic and (*c*) the tumor forming. 5. The more frequent type is the productive-inflammatory, characterized by polymorphism and pleomorphism of the cells, fibrosis and areas of local necrosis. 6. However, even in this type there are found in some of the lymph nodes involved alterations of a more simple character consisting of hyperplasia of the reticular cells alone without fibrosis and admixture of hematogenous elements, such as lymphocytes and polymorphonuclear leukocytes. 7. Hyperplasia of the reticulo-endothelium was the only alteration found in the lymph nodes in a number of the cases. These types cannot be differentiated from the so-called reticulosis. It is quite possible that a number of cases described in the literature as reticulosis were in reality a hyperplastic form of lymphogranulomatosis. 8. Because the lymphogranulomatous tissue may invade the neighboring structures and penetrate vessels, one is justified in speaking of a blastomatous type of lymphogranulomatosis. This applies particularly to the hyperplastic monomorphic type difficult of differentiation from reticulocytomas and similar tumors. 9. The giant cells of Sternberg develop from the reticular cells, more rarely from the endothelial cells of the sinuses of the lymph nodes.

Medizinische Klinik, Berlin

29: 1731-1750 (Dec. 27) 1933. Partial Index

*Infection and Vaccination in Tuberculosis. J. Heimbeck.—p. 1731.
*Investigations on Vitamin Content of Hypophysis. E. Vogt.—p. 1734.
Treatment of Various Forms of Chronic Pemphigus by Means of Dye Derived from Naphthylamine Sulphonic Acid. G. Scherber.—p. 1739.

Infection and Vaccination in Tuberculosis.—Since 1924, Heimbeck has studied the tuberculous infections found in the nurses of the communal hospital of Oslo. The experience, gained during the first three years, was an inducement to extend his studies to the population of Oslo. He reaches the conclusion that only a small minority of persons contract tuberculosis during childhood, the majority becoming infected in later life. The disease manifestations of tuberculosis appear as a rule shortly after the primary infection. The allergy that is detected by means of the Pirquet reaction is a sign of immunity, no matter whether produced by an attack of tuberculosis or by vaccination with B C G. In reporting his experiences with B C G the author states that, of 168 nurses who were vaccinated with it, eighty-four became allergic as a result of the vaccination before they were exposed to tuberculosis. Of these eighty-four, only one contracted tuberculosis; but of the other eighty-four who had not become allergic, eighteen contracted tuberculosis. This corroborates the author's opinion that allergy to tuberculosis is immunity to tuberculosis. Consequently, if a B C G vaccination does not produce allergy it has not conferred immunity and should be repeated.

Vitamin Content of Hypophysis.—Vogt examined ninety different hypophyses for their vitamin A content. He wanted to determine whether the vitamin content fluctuates, and particularly whether it influences the growth of malignant tumors. In summarizing his observations he states that the hormonic activity of the hypophysis is dependent on a certain content in vitamin A. In chronic, exhausting diseases, such as sepsis, the vitamin finally disappears entirely from the hypophysis. The vitamin A content of the hypophysis is closely related to the growth of tumors. In the case of rapidly growing tumors the vitamin A content of the hypophysis is normal or increased, but in cancerous cachexia the entire vitamin A content of the hypophysis has been exhausted by the growth of the neoplasm and consequently is no longer demonstrable. The author suggests that the relatively slow growth of tumors in patients over 60 may perhaps likewise be a result of the depleted vitamin A content of the hypophysis. For the diet of cancer patients he concludes from this that, although care should be taken that it is of sufficient caloric value, it should not be too rich in vitamins. The mechanism of the interrelation between the vitamin content and the hormone production is not fully understood as yet. At any rate, the investigations have made it appear highly probable that there are close connections between hormones and vitamins.

Zeitschrift für Kinderheilkunde, Berlin

55: 639-734 (Dec. 18) 1933

*Simultaneous Occurrence of Sugar and Acetone in Urine of Nondiabetic Children (Glycoketonuria). F. Altmann.—p. 639.
*Reversion of Hemolysis During Childhood. F. Erben.—p. 669.
Stages of Whooping Cough from Hematologic Point of View and Nature of So-Called Whooping Cough Relapse. I. Inaba.—p. 677.
Various Courses of Extrapulmonary Primary Tuberculosis and Aspects of Primary Tuberculosis of Mucous Membrane of Mouth. J. Duken.—p. 687.
*Necroses of Subcutaneous Fat Tissue in the New-Born. J. Bernheim-Karrer.—p. 695.
*Tolerance to Levulose and Galactose in Premature Infants. W. Fabisch and F. Etzold.—p. 702.
Malignant Metastasizing Sympathicoblastoma: Case. K. Rupilius.—p. 708.
Contribution to Physiology of Digestion in Nurslings: XVII. Bile Activator of Prolipase in Human Milk. E. Freudenberg.—p. 714.
Estimation of Size, Weight and Circumference of Chest in Children and Young Persons. W. Kornfeld.—p. 720.
Annular Cutaneous Hemorrhages in Case of Infantile Acrodynia (Feer). B. Dragišić.—p. 721.
Aspects of Testicular Hydrocele During Nursling Age. G. Papp and J. Steinert.—p. 726.
Trichomonas as Cause of Vulvovaginitis in Children. M. Rodecurt.—p. 729.

Sugar and Acetone in Urine of Nondiabetic Children.—Altmann reports observations on the simultaneous occurrence of sugar and acetone in the urine of nondiabetic children. After

acetonuria had been produced by a diet deficient in carbohydrates, the children were given large amounts of dextrose. In a high percentage of the cases the author observed the development of glycoketonuria. It was regularly observed after a tolerance test in febrile acetonuria. The behavior of the blood sugar curve resembled that of diabetes mellitus. While the stomach was empty the blood sugar content was reduced after the ketogenic diet, but there was a tendency to hyperglycemia. The author was unable to obtain reliable results on the behavior of the acetone bodies in the blood following the tolerance test. After the ketogenic diet had been instituted, the development of the acetonuria required from twenty to ninety-six hours. There seemed to be no definite ratio between the acetone content of the urine and of the blood, respectively, and of the expiratory air. The author proposes two explanations for the glycoketonuria: 1. The content of acetone bodies in the blood changes only slightly after the sugar tolerance test and, for this reason, acetone continues to pass into the urine, and at the same time there develops an alimentary glycosuria. 2. Since the pancreas has become weakened by the abstinence from carbohydrates, the administered sugar cannot be sufficiently oxidized and thus cannot exert its antiketogenic function; that is, acetone continues to enter the urine. The hyperglycemia and the glycosuria are indications of incomplete utilization of the sugar. The therapeutic lesson taught by glycoketonuria is that, in spite of the fact that sugar appears in the urine, more sugar must be given to strengthen the pancreas. The author calls attention to the differences in the behavior of the temporary, artificially produced and the true diabetes mellitus but also points out that there are intermediate stages between the two and that a slight infection may be sufficient to turn the dietetically produced acetonuria into a true diabetic coma. This indicates that, in case of fever, acetonuria must be avoided. For unknown reasons the glycoketonuria does not develop regularly. The well known fact that a ketogenic, carbohydrate-deficient, diet causes loss of weight was corroborated in these investigations.

Reversion of Hemolysis During Childhood.—According to Erben it was Spiro who first called attention to the phenomenon known as the reversion of hemolysis. If to a varnish-colored solution of blood corpuscles, which under the microscope appears free from erythrocytes, hydrophilic substances are added, the solution assumes color again, and pale but otherwise intact erythrocytes become once more visible under the microscope. Starlinger investigated the clinical significance of this phenomenon and found that in healthy persons the reversion stays within narrow limits (between 10 and 15 per cent) but that in patients suffering from blood diseases, particularly in those having pernicious anemia, the reversion is increased, fluctuating between 20 and 40 per cent. The increase in reversion is most pronounced during the periods of increased regeneration, while there is no increase during the aregenerative stages. Since many chemical and morphologic reactions of the blood of children differ from those in adults, the authors decided to study the phenomenon of reversion in children. He describes a micromethod for the determination of the reversion of hemolysis in the capillary blood. He employed this micromethod in tests on fifty-five children without blood diseases, on six normal adults and on twelve children presenting disturbances of the blood. In the healthy children and adults he obtained values between 15 and 25 per cent, the average being 19.8. Taking the ages into consideration, a maximum of reversion was noticeable during the first few weeks of life, but this decreased to a minimum during the second and third months. The author believes that with certain reservations this may be considered an indication of a reduced hematopoiesis at the end of the first three months of life. However, the material and the fluctuations are too small to permit definite conclusions. In secondary anemia of various origins, his observations tally with those of Starlinger in that an increase in reversion ran parallel with the intensity of the regeneration, and after regeneration ceased the reversion gradually assumed normal values again. He found that his micromethod gave somewhat greater fluctuations than did Starlinger's method, and he ascribes this partly to the higher levels of the normal values in the micromethod and partly to the greater reactivity during childhood.

Necroses of Subcutaneous Fat Tissues in the New-Born.—Bernheim-Karrer states that, since his previous report on necroses of the subcutaneous fat tissues in the new-born, he has observed fifteen more cases, a sign that the condition is not as rare as is generally believed. Of especial interest was one case because the necrosis was congenital, which proves that a prenatal trauma (perhaps pressure of the uterine wall) may cause a necrosis of the subcutaneous fat tissue; other cases were noteworthy because the fat tissues of the kidney were necrotic. These cases indicate that deeper lying fat tissues likewise may become impaired by the trauma of birth. Another important observation was that in several cases the necrosis ended in calcification. The author evaluates the different theories of the pathogenesis of necrosis of the subcutaneous fat tissues. He ascribes the greatest significance to trauma of birth. He shows that it may be the cause even in delivery by cesarean section, for circulatory disturbances, stases, hemorrhages and ischemia may cause necroses of the subcutaneous fat tissues. The trauma of injection has also been known to be the cause. That necrosis of the subcutaneous fat tissues is often absent in extremely difficult deliveries and occasionally is present in deliveries that are not so difficult may be due to the thickness of the layer of fat tissue. In support of this theory the author cites the fact that many of the children in whom necrosis developed were comparatively heavy at birth. But although the author considers the traumatic origin the most frequent one, he also admits other factors. He calls attention to observations reported by other authors, such as the concurrence of the fat necroses with calcium deposits, the presence of fatty acid crystals and certain resemblances with sclerema.

Tolerance to Levulose and Galactose in Premature Infants.—Studies in which Fabisch and Etzold determined the threshold values for elimination in the urine revealed that premature infants have an average galactose tolerance of 1.6 Gm. and a levulose tolerance of 1.5 Gm. for each kilogram of body weight. Infants born at term have a galactose tolerance of 2.2 Gm. and a levulose tolerance of 2.6 Gm. This shows that the liver of premature infants can utilize larger quantities of galactose than of levulose, while in mature infants more levulose than galactose is tolerated.

Zeitschrift für Krebsforschung, Berlin

40: 105-202 (Dec. 16) 1933

*Comparative Measurements of Nuclei and Nucleoli of Various Tissues, with Especial Consideration of Malignant Tumor Cells. Eva Haumeder.—p. 105.
Growth Processes and High Frequency Radiation: Experiments on Plants and Tumors. F. Ludwig and J. von Ries.—p. 117.
Antineoplastic Immunity: Heterologous Implantation of Tumors into Chicken Embryos. V. Bisceglie.—p. 122.
Id.: Growth Capacity of Heterologous Tumors in Adult Animals Following Implantation of Collodium Bags. V. Bisceglie.—p. 141.
*Characteristics of Cancerous Diseases of Face. E. Paljtschewsky.—p. 159.
New Investigations on Presence of Sarcomagen in Blood of Chickens with Sarcoma. F. Pentimalli.—p. 166.
*Is Tomato Juice to Be Considered a Cancer Producing Factor? Anna Goldfeder.—p. 181.
Investigations on Influence of Acid Substances on Actual Reaction of Normal and Malignant Tissues by Means of Glass Electrode. Anna Goldfeder, H. M. Partridge and J. A. C. Bowles.—p. 186.
Growth Mechanism of Experimental Teratomas. K. Pichler.—p. 192.

Measurement of Nuclei and Nucleoli in Malignant Tumors.—In micrometric studies on the nuclei and nucleoli of nonmalignant and malignant cells, Haumeder found that in malignant cells the nuclei and nucleoli were considerably larger. But even when the nuclei were only slightly larger, the nucleoli showed a great increase in size. The ratio between the size of the nucleolus and the nucleus fluctuated in nonmalignant cells from 1:13 to 1:45 and in malignant cells from 1:5 to 1:17. Thus the enlargement of the neucleoli can be considered a characteristic of malignant cells. After pointing out that enlargement of the nucleoli in malignant cells has been demonstrated by several other authors (Quensel and Karp), the author reaches the conclusion that enlargement of the nuclei, and particularly of the nucleoli, is important for the early cytologic diagnosis.

Cancerous Diseases of Face.—On the basis of observations on 500 patients with cancer of the face, 247 of which

were examined histologically, Paljtschewsky reaches the following conclusions: Cancer of the face occurs nearly twice as often in men as in women. It is most frequent in farmers, and then follow workers who are exposed to various chemical and thermic influences. About 50 per cent of cancers of the face are basal-cell carcinomas. The aceratotic forms of the spinocellular cancers predominate in younger patients, the basal-cell carcinomas are most frequent in middle age, and the canceroid forms predominate in the aged. The spinocellular cancers are found mainly near the natural openings of the face or at the border of the mucous membrane, and the basal-cell carcinomas at the sites where there are many sebaceous glands. A certain regularity in the development of cancer is undeniable and the location corresponds to the physiologic atrophies of the skin. As a rule, the spinocellular forms are preceded by lesions of the epidermis, whereas pathologic processes of the sebaceous glands or of the hair roots, or comedones, acne and nevi frequently are the precursors of basal-cell carcinomas. The varying behavior toward roentgen and radium therapy indicates considerable differences in the histogenesis of the different kinds of cancers.

Is Tomato Juice a Cancer Producing Factor?—Goldfeder treated sixty rats with tomato juice. Some of the animals were treated according to the method of Bellow, and others were given sterilized tomato juice either by intraperitoneal injection or by mouth. Malignant growths developed in none of the animals. However, at the site of the injection there always developed foreign body granulomas, abscesses and inflammatory granulation tissues.

Zentralblatt für Gynäkologie, Leipzig

57: 3009-3072 (Dec. 23) 1933

Papillomatosis of Urinary Organs and Total Nephro-Ureterectomy. O. Kneise.—p. 3011.
Treatment of Pyelitis Gravidarum. H. Küstner.—p. 3015.
Transcervical Drainage of Urinary Bladder. F. Daels and L. Elaut.—p. 3019.
*Genesis of Vesical Endometriosis. G. Haselhorst.—p. 3021.
*Vaginal Calculus in Congenital Urinary Incontinence with Double Formation of Vagina. B. Kriss.—p. 3030.

Genesis of Vesical Endometriosis.—Haselhorst points out that, although there is considerable literature on the endometriosis of the bladder, the how and wherefore of the endometrioid proliferation have not been cleared up in most instances. In reviewing twenty-five cases from the literature, he found three cases in which the vesical endometriosis was the result of a proliferation of the uterine mucous membrane through the scar of the uterine wall after Beuttner's amputation of the bladder. In ten reports the anamnesis was incomplete, but, considering all cases, the author found an unusually high incidence of sterility. Myomatosis of the uterus was frequent among the patients, a sign that tendencies to connective tissue proliferation and to epithelial proliferation frequently concur. Disturbances of the adnexa likewise were frequent. Moreover, all except three of the patients had either had a gynecologic disorder or undergone a gynecologic operation. Not a single case has been reported in which it was established beyond a doubt that only the bladder was diseased. The localization of the endometriosis in the bladder is worthy of note. It is always the posterior portion of the bladder that is involved. The foci are, as a rule, between the orifices of the ureters or somewhat higher. There is no case on record in which the endometriosis was on the anterior wall or the free portion of the bladder. This seems to indicate that the section of the uterus adhering to the posterior wall of the bladder is principally the origin of the endometriosis. The author advises that the adjoining regions be searched for a focus in all cases of vesical endometriosis. He gives a detailed report of one case studied by him. On the basis of the histologic examinations he rejects the possibility of an invasion of the endometrioid epithelium from foci within the abdominal cavity, for a glandular connection between the cervix and the vesical wall was found in the center of the pedicle and the cervical glands and the endometrium shaded off into one another, a phenomenon that would be unexplainable if a proliferation from the outside was assumed. Moreover, the abundance of glands and cysts in the cervical wall is a sign of a strong proliferative power in the glandular epithelium, whereas endometrioid foci were not found in the region of the pelvic peritoneum. Endometrioid proliferations were present also in the uterine tubes. Thus the case represents, on the part of the cervical glands and of the tubal epithelium, a tendency to proliferation beyond the physiologic limits, and the mucus forming epithelium of the cervical glands assumes an endometrioid character. The author sees the cause of this pathologic growth of the epithelium in disturbances in the hormonic equilibrium, and he thinks that these hormonic disturbances play a part also in the pathogenesis of sterility.

Vaginal Calculus.—Kriss relates the clinical history of a woman, aged 30, who from early childhood had had urinary incontinence. Beginning with the tenth year she had had the feeling of a foreign body in the genitalia. At the age of 11, a stone (5 cm. in length) was discharged. Subsequently calculary fragments were discharged from time to time. The patient married, became pregnant at the age of 17, and had a normal child. A pregnancy, four years later, was interrupted. During all these years the urinary incontinence persisted and even became exacerbated as the result of the childbirth. Examination revealed a double vagina. The smaller one on the right side contained a number of small concrements. Roentgenoscopy of the spinal column revealed abnormalities in the lumbar region indicating spina bifida. Hysterosalpingography with the aid of contrast filling showed that the double formation did not involve the uterus and that the tubes were normal. The author explains the case in the following manner: The accumulation of urine in the nearly completely closed vagina led to the precipitation of salts and to concrement formation. Exertion (abdominal pressure) caused the calculus to be discharged. Following defloration, the urine no longer could accumulate in the main vagina on the left side, whereas in the right accessory vagina the urine continued to gather, and thus there was still a possibility for the formation of small vaginal concrements. Not until the repair of the incontinence can the complete cessation of the formation of calculi be expected.

Hygiea, Stockholm

95: 897-944 (Dec. 15) 1933

*Contribution to Knowledge of Prognosis and Treatment of Massive Hemorrhages in Gastric and Duodenal Ulcer. O. Mossberg.—p. 897.

Massive Hemorrhages in Gastric Ulcer.—There was hemorrhage in some form in 46 per cent of Mossberg's 1,032 patients suffering from gastric and duodenal ulcer treated from 1922 to 1931, and manifest hemorrhage in 35 per cent. Of the cases of manifest hemorrhage 236, or 75 per cent, were more massive hemorrhages, and of these 90, or 38 per cent, were extremely grave. In 30 per cent of the patients presenting hemorrhage the ulcers were clinically acute (ulcers with history of up to one-half year). There were 46 fatal cases of acute hemorrhage from 1912 to 1921, and 28 from 1922 to 1931, hemorrhage being the direct cause of death in most of them, with complications as a contributing cause in some. Necropsy in 35 instances showed that the anatomopathologic conditions did not always agree with the clinical picture and that in half of the cases the fatal hemorrhage was due to recent ulcers of the mucous membrane. The mortality from acute hemorrhage was 2.7 per cent of the total 1,032 cases, 9 per cent of the cases of manifest hemorrhage, 12 per cent of those of more massive hemorrhages, and 31 per cent of those regarded as extremely grave. When blood transfusion was given, the hemorrhage ceased in half the patients, mostly suffering from acute ulcers; some of these recovered. Operation was successfully performed on others after transfusion. Hemorrhages usually recurred after transfusion. The author states that operation is excluded in patients bleeding from a clinically acute ulcer; in patients having hemorrhage from clinically chronic ulcers with a pronounced, longer history or in whom the ulcer has been located by earlier examination, especially in persons over 40, operation seems advisable and to offer good prospects if the intervention is made in so early a stage that the acute grave anemia from bleeding has not yet caused grave injuries to the internal organs.

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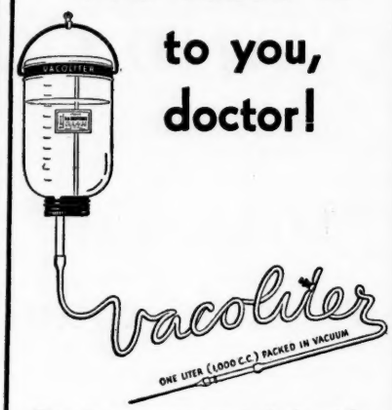

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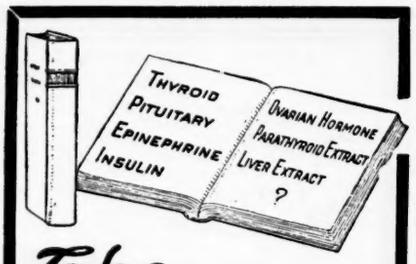

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Gland therapy is not a closed book. New chapters are being written with surprising rapidity. Some of the outstanding achievements of medicine in the decade have been in this field.

The Wilson Laboratories are devoted exclusively to the study, development and manufacture of medicinal animal substances.

Admittedly there have been many failures with glandular therapy but also many successes.

Equally as important as a correct application of gland therapy is the selection of the preparations administered.

To insure gland products made from fresh glands collected under direct supervision.

—processed promptly with the aim of conserving maximum hormone activity.
—in a laboratory devoted exclusively to the endocrine field.

Specify

WILSON'S

When Prescribing a Gland Product

THE WILSON LABORATORIES

4221 S. Western Boulevard
CHICAGO, ILL.
Dept. A

Manufacturers of STANDARDIZED ANIMAL DERIVATIVES, LIGATURES and DIGESTIVE FERMENTS

Write for Literature

Tonics and Sedatives

IT ONLY TAKES ONCE, LEONA

Item taken by R. B. E. from Colliers

Miss Leona N. Musser of Los Angeles, California, is going to write an article denouncing serums of all sorts but in particular antitetanus serum. Says she: "I have been bitten more than fifty times by various cats of which I have owned more than thirty in the past ten years. I have never had a minute's discomfort from such bites and never felt better in my life. I could also tell other remarkable stories."

That's enough, Miss Musser.

THAT'S TELLING 'EM, LADY

Letter received by an Illinois teacher and forwarded by H. P. M.

Dear Madam

My Betty Said you said she smelt Bad. Far that goes she dosent smell have as bad as Some others. I send her to school for to be taught and not smelt.

There's the Difference

Seen by F. R. J. in the Boston Traveler 1-27-34

LYNN MAN, BITTEN BY HORSE, SUES

An investigator of the claim department of the city first reported McPhee was bitten in the rear of the Western avenue car barns and later changed his report to say the bite was on McPhee's left shoulder.

Pickwick Paper

Culled from the Memoirs of Dr. Aaron of Pawhuska, Okla. in the Daily Journal-Capital of that city by R. O. S.

A few years later as "Doc" Aaron paced his old surry down East Main street, bumping over rocks and spattering mud over the early store fronts, he saw in a vacant lot a little girl running across towards a house. Her dress had caught fire from a barn fire, around which she and a little boy had been playing. Aaron threw his reins over the dashboard and leaped out, running after the little girl who was as frightened of him as she was of her clothing burning off. He grabbed her, and smothered the flames in his heavy overcoat. The little girl was saturated with pickwick acid from the 'little black satchel,' and today that native Pawhuska miss is still a Pawhuska miss, some twenty-three years later.

Comment on "We Owe a Cock to Aesculapius," by Dr. Lewis J. Moorman, Dean, The University of Oklahoma School of Medicine, Diplomate, January, 1934, Vol. 6, No. 1, page 1

THE WILL OF SOCRATES

We owe a cock to Esculape
Said dying Socrates
It is my will that nothing stop
The payment of his fees.
This philosophic will is not
A major moral law.
Non-payment of the doctor's debt
Is now a minor flaw.
It may be hard to diagnose
The cause of turpitude
And hell to psychoanalyse
One back to rectitude.

(Continued on page 30)

SPECIFY 'HEILKRAFT'

SCARLET R. SALVE

Samples Free

Heilkraft Medical Co. Boston, Mass.

Radium Rental Service

BY

THE PHYSICIANS RADIUM ASSOCIATION

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Feedings are more uniform when you suggest this economical method of providing strained vegetables. Prepared scientifically; all irritating fibre removed by extra fine mesh screens.

9 Varieties
ready to use
Peas, Beets, Celery, Prunes, Spinach, Green Beans, Carrots, Tomatoes, Vegetables with cereal and beef broth.

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Dept. 22, Green Bay, Wis.

only 10¢

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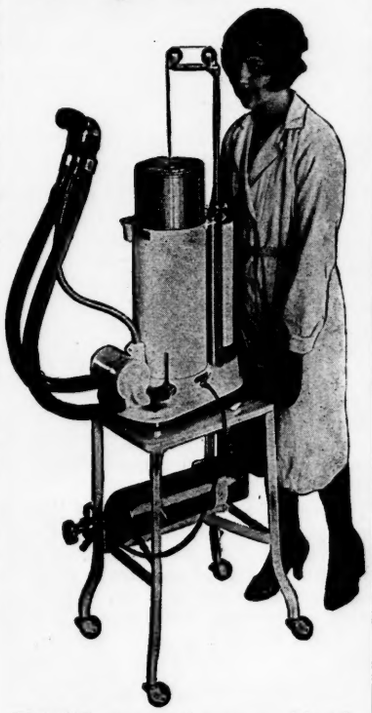
is a proven diagnostic aid—*It's worth your investigation.*



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Let us send you interesting literature about the latest SANBORN MOTOR-GRAFIC, for office and hospital use.

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Yes, send me free booklet and full information about the latest Sanborn Motor-Grafic.

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Street.....

City and State.....

2-24-34

(Continued from page 27)

FOR SALE—ILLINOIS—RICH AGRICULTURAL and manufacturing community; population 15,000; northwestern Illinois; office equipments, office and home, combined; may rent or buy either or both; doctor deceased. Add. 8811 P, % AMA.

FOR SALE—INDIANA—COMPLETE STOCK OF drugs and equipment including office furniture; town of 600 in north central part of state; one of best farming districts in state; good living assured; terms $1,000 cash. Add. 8793 P, % AMA.

FOR SALE—PARTNERSHIP—KANSAS — COUNTY seat town 1,000; $200 to swing deal; 1 osteopath and 1 regular M.D.; good community. Add. 8807 P, % AMA.

FOR SALE—SOUTH CENTRAL KANSAS—$10,000 practice which may be increased with surgery; oil fields, refineries; good schools and churches; population 13,500; 3 hospitals; office supplies, reception room furniture; quitting business on account of health; price reasonable. Add. 8809 P, % AMA.

FOR SALE — TEXAS — LOWER RIO GRANDE valley, progressive town; physicians and surgeons practice, established 26 years, chiefly surgery; good, steady income, 16,000 case records, new x-ray and electrical therapy equipment, laboratory, office rental optional, $4,500. Communicate Mrs. B. O. Works, Brownsville. P

APPARATUS, ETC., FOR SALE

FOR SALE—NEW STOCK OF X-RAYS FLUOROscopes, diathermies at tremendous savings; Hanovia home model alpine lamps, brand new, $65 each; write for particulars; also mechanical stages, ophthalmoscopes and otoscopes, Sahli Haemometers and so on; trade ins welcome. J. Beeber Company, 178 Second Ave., New York City. Q

FOR SALE—GENERAL ELECTRIC RADIOGRAPHIC and water cooled therapy equipment; C. D. X. dental x-ray with chair; practically new; good buy for radiologist or hospital; everything for first class x-ray laboratory included; cost $18,500, sell for $8,000 cash. Address Dr. Mark E. Bowles, 904 Carew Tower, Cincinnati, Ohio. Q

BOOKS WANTED AND FOR SALE

WANTED—COMPLETE SET OF VOLUME 1 OF the Archives of Internal Medicine; will pay as high as $15. Add. 8808 R, % AMA.

FOR RENT

FOR RENT—RYE, N. Y.—FURNISHED OR UNfurnished; excellent for sanatorium; 18-bedrooms, 7 baths, spacious verandas; cottage, 8 bedrooms, bath; garage; 2½ acres, large shade trees. Apply, Charles H. Strong, 36 West 44th, New York. T

(Continued on page 34)

do you treat
CANCER?

Make use of the resources and facilities of the most completely equipped commercial radium laboratory in the world.

When we furnish Radon for your use, it is prepared to meet the needs of the individual case. Your patient receives the benefit of every advance in radium therapy and you have the assurance that each preparation will fulfill every requirement as to dosage, filtration, leak-proof applicators and price.

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TWO MODELS

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for fine detail radiography with moderate milliamperes and for fluoroscopy. $100.00

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for all around radiography, up to 100 MA technique.
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1. **Elongated Focus** gives finer projected focal spot; insures better Radiographic Detail.
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SKULLOPENER

removes the skulltop in 10 to 30 seconds.
Adaptable to any shape of skull.
Model A—with hand cutting device.....$18.75
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THORAXOPENER

with ziplike action.....$6.75

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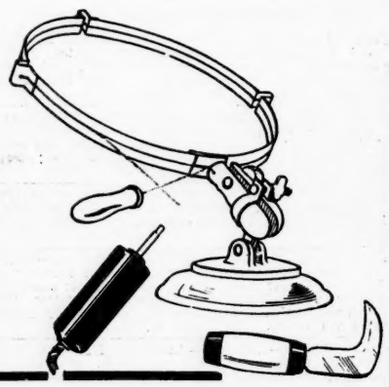

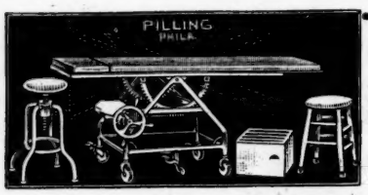

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Chevalier Jackson Operating Table
Apparatus and instruments are authentic models and exact duplicates of those made by us for and used by the Chevalier Jackson Clinics in Philadelphia.
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250 NOTE HEADS 6x9½ AND 250 BUSINESS ENVELOPES **$2.95** POST PAID
Or 500 of both $4.95. High Grade White Bond Paper.
Both paper and envelopes printed with your name and address (3 lines). Extra lines 25c each. Prescription Blanks, Cards, Statements, Gummed Labels. History Cards. Catalog Free.
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1723 MADISON ST. Est. 1896 CHICAGO, ILLINOIS

The Periodic Health Examination
55-page Manual of instructions and follow-up advice.....20c
RECORD FORMS: 10 copies....25c 50 copies....50c 100 copies....75c
AMERICAN MEDICAL ASSOCIATION
535 N. Dearborn St. Chicago, Ill.

The Journal Classified Ads Always Bring Good Results

ARIZONA 84% Sunshine

It's "June-time" all winter In this dry, warm "Land of Sunshine" — and the altitude is ideal!

Having a climate which is unsurpassed, Phoenix and the nearby towns of Mesa, Tempe, Chandler, Wickenburg, Glendale and Buckeye, offer the opportunity to live a healthful outdoor life. Warm sunshine floods this area 84% of all the possible daylight hours; winters are moderate; the clean, dry air is bracing and refreshing; the altitude of 1100 feet is ideal.

Consider Phoenix for your patients who need to recuperate physically and mentally. Consider the well-managed sanatoria and hospitals, competent medical supervision, comfortable living accommodations to meet every budget, fresh fruits and vegetables the year around—which are all to be found here in this friendly Valley of Sunshine.

Send us the schedule of those persons you are sending to Phoenix. We will be glad to meet their train or plane and help them locate in comfortable accommodations to fit their budget.

Reduced winter fares now effective on the Rock Island-Southern Pacific, and Santa Fe Lines.

Climatological Data
U. S. Weather Bureau Statistics Covering a period of 36 years

	Mean Yearly Average
Temperature	69.8°
Rainfall	7.81 inches
Relative Humidity	37.33%
Sunshine	84%
Altitude	1,100 feet

PHOENIX
CHAMBER OF COMMERCE
118-I La Ciudad Del Sol
(The City of the Sun)
Please send me free descriptive literature and further information about the climate.
NAME _____
ADDRESS _____

(Tonics and Sedatives Continued)

Let Gladys Go

Letter received by a Philadelphia school teacher and forwarded by M. S.

Miss E.—The reason Gladys was absent all week she had a touch of grip and I kept her in the house so she wouldn't catch any more. Also the medisin she has been taken is to help her pass the cold off and it is very urgent that she leaves room so please let her pass out with out asking for if she doesent she will have an accident so please let her get up and go.

THE RIGHT ANSWER

Sir:—We sent out a questionnaire to a patient. One of the questions was, "Give a short account of your past (habits, diseases, accidents, etc.). The answer to this was, "Housewife, with four children."

E. C. G., Missouri.

The Facts in the Case

Clipped by E. B. D., from the Sumner (Nebr.) News

Some time ago the Baptist ladies sent me a piece of pumpkin pie. I failed to express the thanks I should, but I felt better.

I missed the cord to pull the light on one night some two weeks ago, reached again lost my balance and fell. I didn't tip over the slop jar nor smash my upper teeth as they were in a tin cup on the bureau. My nose bleed nearly 2 hours, but I feel better.

You Know What They Mean!

Seen by C. A. S. in the Amer. Jour. Pub. Health

"The infant death rate has decline enormously during the last decade in Illinois but there has been no improvement whatever in the chances of survival for the baby who fails to live out the first day of life"

He seems to be dead! Maybe Adrenalin would help.

THE OLD ONES ARE THE BEST
ADVICE TO CONTRIBUTORS

If you've got a thought that's happy—
Boil it down.
Make it short and crisp, and snappy—
Boil it down.
When your brain its coin has minted,
Down the page your pen has sprinted,
If you want your effort printed,
Boil it down.
Take out every surplus letter—
Boil it down.
Fewer syllables the better—
Boil it down.
Make your meaning plain—express it,
So we'll know—not merely guess it,
Then, my friend, e'er you address it,
Boil it down.
Cut out all the extra trimmings—
Boil it down.
Skim it well—then skim the skimmings—
Boil it down.
When you're sure 'twould be a sin to
Cut another sentence in two,
Send it on, and we'll begin to—
Boil it down.

Author Unknown.

Radiograph (after ingestion of a barium meal) showing a typical case of diverticulosis.

YOUR clinical findings may suggest cholecystitis, appendicitis, or even carcinoma. But if the radiographs your radiologist makes of the case show bud-like masses which protrude from the lumen of the colon and retain some of the barium mixture after the mass has moved on, the condition can be promptly and correctly diagnosed as diverticulosis.

In addition, radiography provides the means of determining the degree and extent of ptosis.

Radiographs alone present such conclusive information. For this reason, all patients with obscure gastro-intestinal symptoms should be referred to your radiologist for a thorough x-ray examination.

RADIOGRAPHS PROVIDE DIAGNOSTIC FACTS

NRA

• *Mail the coupon and we will send you the free publication, "Radiography and Clinical Photography." It contains much valuable and new information on these subjects.*

EASTMAN KODAK COMPANY,
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341 State Street, Rochester, N. Y.

Gentlemen:
Please send me your free publication, "Radiography and Clinical Photography."

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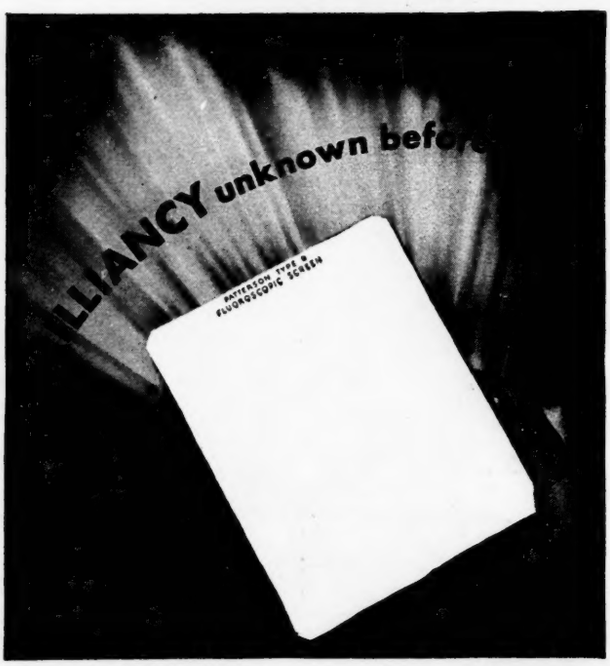
With this new Fluoroscopic Screen...



FOR ALMOST 20 YEARS chemists have striven to develop a more brilliant fluoroscopic screen... without success. ★ But now the goal has been reached. Patterson now offers such a screen made from a new fluorescent material. ★ The new Patterson Type B Fluoroscopic Screen is about one-third more brilliant than the Patterson "Standard" Fluoroscopic Screen. Furthermore, with this new screen, there is all-around sharper detail. ★ You will find that the Patterson Type B Fluoroscopic Screen marks a decided step forward in fluoroscopy and that it greatly facilitates fluoroscopic diagnosis. ★ You are sure to be impressed by a demonstration of this new screen. And your dealer would gladly give you one. ★ The Patterson Screen Company, Dept. JAMA, Towanda, Penna., U. S. A.

Patterson

X-RAY

INTENSIFYING **Screens** FLUOROSCOPIC

SCREEN SPECIALISTS FOR NRA *MORE THAN 18 YEARS*

Books Received

Books received are acknowledged in this column, and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for more extensive review in the interests of our readers and as space permits. Books listed in this department are not available for lending. Any information concerning them will be supplied on request.

THE RESIDUAL EFFECTS OF WARFARE GASES: III. PHOSGENE; IV. ARSENICAL COMPOUNDS. By Harry L. Gilchrist, M.D., Major General, U. S. Army, and Philip B. Matz, M.D., Chief, Medical Research Subdivision, Veterans' Administration, Washington, D. C. War Department. Paper. Price, 5 cents. Pp. 55. Washington, D. C.: Supt. of Doc., Government Printing Office, 1933.

LEITFADEN DER TECHNISCHEN HYGIENE (UNFALL- UND KRANKHEITSVERHÜTUNG) IM MEDIZINISCHEN BETRIEB. Von Dr. Herman Schiler, Oberstabsarzt A. D. Herausgegeben auf Veranlassung der Berufsgenossenschaft für Gesundheitsdienst und Wohlfahrtspflege. Boards. Price, 4.20 marks. Pp. 212, with 20 illustrations. Leipzig: Georg Thieme, 1934.

STATISTIQUES DES MALADIES À DÉCLARATION OBLIGATOIRE POUR L'ANNÉE 1931. Publiées par la Section d'hygiène. Société des Nations, Organisation d'hygiène. Statistics of Notifiable Diseases for the Year 1931. Published by the Health Section. League of Nations, Health Organisation. Paper. Pp. 90. Boston: World Peace Foundation; Geneva, 1933.

THE PASTEUR INSTITUTE OF SOUTHERN INDIA, COONOOR. The Annual Report of the Director for the Year Ending 31st December, 1932, Together with the Twenty-Sixth Annual Report of the Central Committee of the Association for the Year Ending 31st March, 1933. Paper. Pp. 74. Madras: Madras Publishing House, Ltd., 1933.

MEDIZINISCHE KOLLOIDLEHRE. Herausgegeben von Prof. Dr. L. Lichtwitz, Dr. Dr. Raph. Ed. Liesegang, und Prof. Dr. Karl Spiro, Direktor des Physiologisch-Chemischen Instituts der Universität Basel. Lieferung 9. Paper. Price, 5 marks. Pp. 609-688. Dresden & Leipzig: Theodor Steinkopff, 1933.

THE SINGLE WOMAN: A MEDICAL STUDY IN SEX EDUCATION. By Robert Latou Dickinson and Lura Beam. Medical Aspects of Human Fertility Series Issued by the National Committee on Maternal Health, Inc. Cloth. Price, $5. Pp. 469. Baltimore: Williams & Wilkins Company, 1934.

PFITZNERS LEITFADEN FÜR SITUSÜBUNGEN AN DER LEICHE ZUM GEBRAUCHE BEI DEMONSTRATIONEN UND REPETITIONEN. Von Dr. med. K. O. Henckel, Professor an der Universität Concepción (Chile). Eighth edition. Paper. Price, 1.20 marks. Pp. 36. Leipzig & Vienna: Franz Deuticke, 1934.

TREATMENT IN GENERAL PRACTICE. By Harry Beckman, M.D., Professor of Pharmacology at Marquette University, School of Medicine, Milwaukee. Second edition. Cloth. Price, $10. Pp. 889, with illustrations. Philadelphia & London: W. B. Saunders Company, 1934.

MEDICAL WOMEN OF AMERICA: A SHORT HISTORY OF THE PIONEER MEDICAL WOMEN OF AMERICA AND OF A FEW OF THEIR COLLEAGUES IN ENGLAND. By Kate Campbell Hurd-Mead, M.D. Cloth. Price, $1. Pp. 112, with illustrations. New York: Froben Press, 1933.

LABORATORY MEDICINE: A GUIDE FOR STUDENTS AND PRACTITIONERS. By Daniel Nicholson, M.D., Assistant Professor of Pathology, University of Manitoba. Second edition. Cloth. Price, $6.50. Pp. 569, with 127 illustrations. Philadelphia: Lea & Febiger, 1934.

IDLENESS AND THE HEALTH OF A NEIGHBORHOOD. By Gwendolyn Hughes Berry, Ph.D. A Social Study of the Mulberry District. Paper. Price, $1. Pp. 93, with 38 illustrations. New York: New York Association for Improving the Condition of the Poor, 1933.

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AN ITEM OF EQUIPMENT WHICH RANKS IN IMPORTANCE WITH YOUR CAR

SHOCKPROOF "METALIX"
PHILIPS
PORTABLE X-RAY

PHILIPS METALIX CORPORATION
300 FOURTH AVENUE, NEW YORK CITY, N. Y.
329 SOUTH WOOD STREET, CHICAGO, ILL.

PHILIPS METALIX

Clean and Pure Water...

is as necessary to the health and wholesomeness of lobsters as it is to the well-being of people.

And a lobster that has been kept in polluted harbor water is a danger no one can afford to risk.

OCEAN-CLEAR LOBSTERS

are kept only in Clean, Clear, Cold, Uncontaminated ocean water...as clean as that in which the lobster was spawned and caught.

Address, General Manager for booklet M2A

The advertising for Ocean-Clear live lobsters is accepted by the Committee on Foods of the American Medical Association.

ACCEPTED AMERICAN MEDICAL ASSN. Committee on Foods

CONSOLIDATED LOBSTER COMPANY, INC.
World's Largest Distributors of Lobsters
GLOUCESTER, MASSACHUSETTS
BOSTON (Chelsea)
NEW YORK
(Fulton Market)

(Continued on page 29)

APPARATUS AND INSTRUMENTS

AN INGENIOUS TIME SAVER IN POST MORTEM work is the new Skullopener manufactured by the Omega Instrument Company, which removes the skull-top in 10 to 30 seconds. It is adaptable to any shape of skull and is equipped with either a hand cutting or electric cutting device. Prices are given in advertisement on page 30.

ONE ANNOUNCEMENT WHICH YOU WILL WANT to note specially in this issue is to be found on page 45, concerning the pooling of the facilities of the E. J. Rose Mfg. Co., manufacturers of "Rosebuilt" Physical Therapy Apparatus, and the Electro Therapy Products Corp., designers and builders of Cold-Quartz Ultra Violet Generators. Information concerning the products of either or both firms will be furnished gladly.

FOR TONSILLECTOMY, IN TREATMENT OF sinus infections or for other uses where such apparatus is indicated, you will find the Tompkins' Portable Rotary Compressor of unusual practicability. It is easily portable, for one thing, its entire weight complete being but 20 lbs. Some further features are mentioned in the advertisement on page 46 and illustrated folder will be mailed upon receipt of the coupon.

DIETETIC PRODUCTS

WHEN CEREAL IS ADDED TO THE DIET OF the young baby it usually means more work and worry for a busy mother—but this doesn't need to be the case. There's now a cereal on the market which is planned, prepared and put up expressly for infants—Gerber's Strained Cereal, advertised on page 40. Why not use the coupon to secure a sample can so that you can examine its merits for yourself?

DRUG ADDICTS

DRUG AND ALCOHOLIC PATIENTS ARE HUmanely and successfully treated in Glenwood Park Sanitarium, Greensboro, N. C.; reprints of articles mailed upon request. Address W. C. Ashworth, M.D., Owner, Greensboro, N. C.

FARMS FOR SALE

SALT RIVER VALLEY, ARIZONA, WHERE THE winter days are days of sunshine; land especially adapted and proven for the growing of grapefruit, oranges and lemons, dates, olives and figs can be had moderately priced and on reasonable terms in tracts of five acres up; fertile soil irrigated by gravity from storage dams; ideal climate, good roads, schools and churches, with city comforts in country homes, adjacent to the city of Phoenix. Write for free Arizona folder, C. L. Seagraves, General Colonization Agent, Santa Fe Railway, 975 Railway Exchange Bldg., Chicago.

(Continued on page 36)

VB
APPLE-SAUCE
(Sweetened with Sugar)
A delicious blend of New York State Apples.

Product of
LYNDONVILLE CANNING CO., Inc.
Lyndonville, New York

MEDICAL MART

Artificial Limbs

WINKLEY ARTIFICIAL LIMB CO.

The Winkley Adjustable Double Slip Socket Leg warranted not to chafe the stump. Perfect fit guaranteed from cast and measurements without patient leaving home.

Send for illustrated catalogue, Arm or Leg (issued separately)

1326 Washington Avenue, North Minneapolis Minnesota

Insurance

No doubt you are a careful driver but personal injuries will occur. Our Accident Policy pays $25 Weekly Benefit and $5,000 Death Benefit. Costs only $13.00 yearly. We paid out $300,750.78 for fatal and non-fatal accidents during 1932. Write for particulars. Three policies issued to one person providing $75 Weekly and $15,000 Death Benefit.
PHYSICIANS CASUALTY ASSOCIATION
400 First National Bank Bldg., Omaha, Nebr.

HYCLORITE

HYCLORITE SOLUTION SODIUM HYPOCHLORITE

Accepted by the Council on Pharmacy and Chemistry of the American Medical Association (N.N.R.)

ANTISEPTIC

TO PREVENT INFECTION OF RINGWORM

For irrigating, swabbing and dressing infected cases wherever an antiseptic is needed.

For Hand and Skin Sterilization.

To Make a Dakin's Solution of Correct Hypochlorite Strength and Alkalinity.

NON-POISONOUS
NON-IRRITATING

Write for Literature

BETHLEHEM LABORATORIES
INCORPORATED
300 Century Building,
PITTSBURGH, PENNA.

RESULTS *from* CLASSIFIED ADS

250 Replies

"Kindly discontinue our ad in your JOURNAL in which we advertise for a doctor. We have received to date in the neighborhood of two hundred and fifty replies, and have located the man we want."

Sells to First Applicant

"Sale of location made today. Thanks for your cooperation. Ad brought sale to first applicant who read the ad and visited my office."

FOR FULL DETAILS regarding classified advertisements **SEE PAGE 26**

Useful Cathartics

By Bernard Fantus, Associate Professor of Therapeutics, Rush Medical College

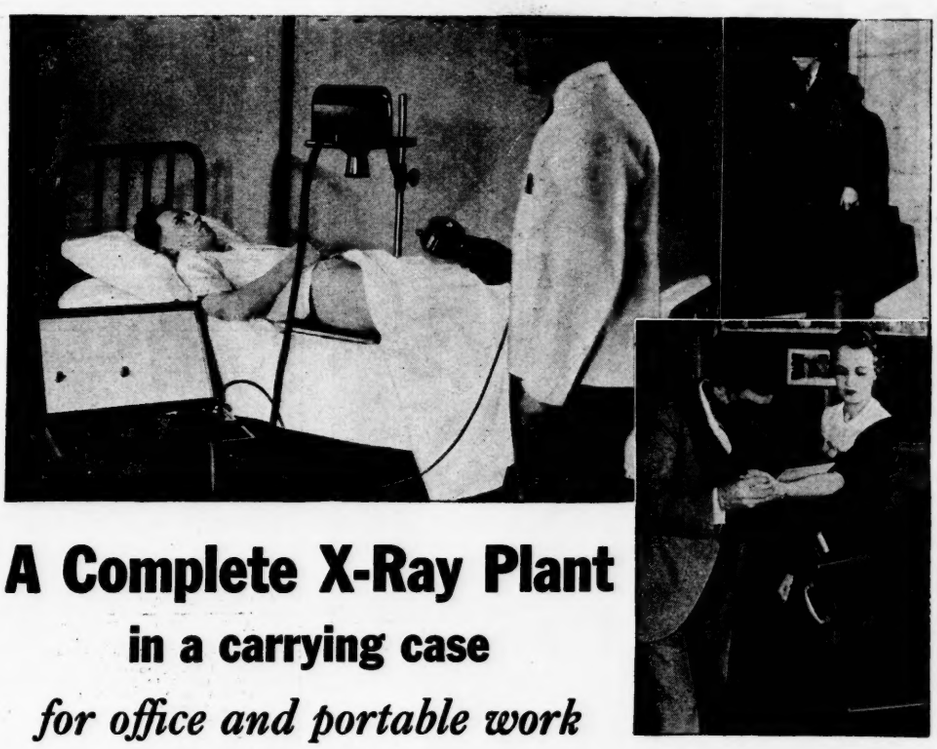
Second Edition—1927

This handy volume condenses into the space of 120 pages the essentials of material which it would take days to secure from the larger works. It tells

Why Cathartics Cause Constipation.
How to Handle Acute Painful Constipation.
When Constipation Is Symptomatic.
How Liquid Petrolatum Acts.
When Olive Oil Is Not Advisable.
How to Administer an Oil Enema.
How to Make Castor Oil Unobjectionable.
How to Serve Bran in Appetizing Dishes.
When to Use Cascara, Senna.
How to Choose a Phenol Saline Preparation.
How to Administer Agar.
How Salines Affect the Intestine and the System in General.
How to Make Salines More Palatable.
How to Administer Calomel.
When Purgative Pills May Be Chosen.

"Useful Cathartics" should be among the handy books on every practitioner's desk. Bound in green cloth; price, $1.00. Remit with order.

American Medical Association
535 North Dearborn Street, Chicago, Illinois



A Complete X-Ray Plant

in a carrying case

for office and portable work

● Model F—the latest addition to our Shock Proof series—is accommodated in a carrying case measuring only 19¼ in. x 12¾ in. x 7¾ in. —weight only 30 pounds. Energized through the ordinary electric outlet.

SHOCK PROOF!

Immersion of Coolidge Tube in oil makes possible the smallest practical X-Ray Unit ever designed

Due to this remarkable compactness and the flexibility realized through 100% electrical safety, radiography and fluoroscopy become possible in many unusual but necessary positions heretofore impractical with open type equipment.

As an adjunct to office practice and as an emergency portable outfit, it covers a remarkably wide range of diagnostic service, considering its size. Its ability to produce a radiograph of a pelvis, average size, in six seconds at 25 inch focal-film distance is indicative of its usefulness. The extremely small Benson focus of the special oil-immersed Coolidge tube permits closer focal-film distances without sacrificing detail.

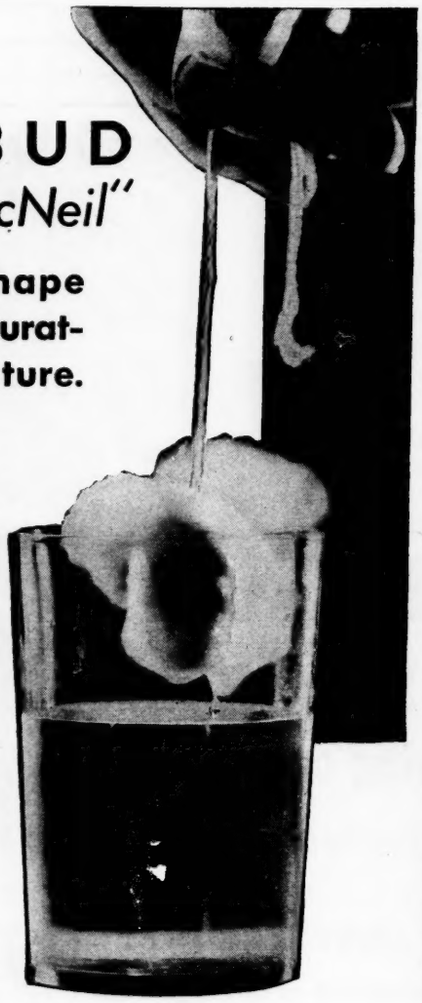
That is Model F in a nutshell—a design which from the standpoint of compactness in relation to capacity and range of service is unprecedented. It unquestionably fills a very definite need as a utility office unit which at the same time serves so practically for portable work.

GENERAL ELECTRIC X-RAY CORPORATION

2012 Jackson Blvd. *Branches in Principal Cities* **Chicago, Illinois**

ROSEBUD TAMPON "McNeil"

Retains its shape even when saturated with moisture.



(Retains its shape even when dipped in water—a severe test)

UNLIKE all other tampons, the Rosebud Tampon *"McNeil"* does not collapse or lose its shape when saturated. Around the jute core is spun a small amount of absorbent cotton which, in turn, is surrounded by lamb's wool. Casual examination instantly discloses its superior construction and indicates its unequalled efficacy in prolonging vaginal medication—properly.

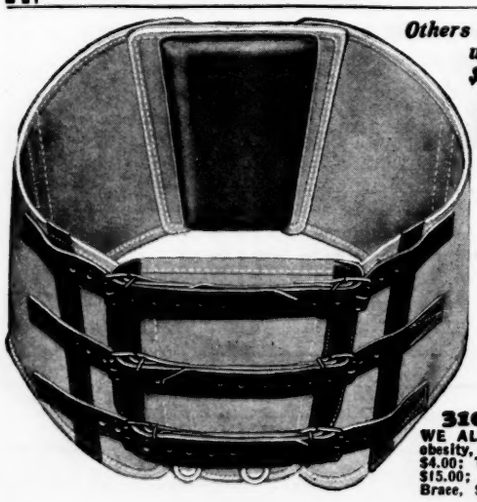
Your dealer has the Rosebud Tampon in four sizes—extra small, small, medium and large in boxes of one dozen at $1.00 per box. Your dealer can also supply Rosebud Medications in four effective formulae.

We suggest that you try Lubricant *"McNeil,"* the smooth, sterile lubricating jelly in the over-size, nozzle-tipped tube. Price $1.00 for 3 tubes; $3.75 per dozen tubes.

McNEIL LABORATORIES

Pharmaceuticals · Surgical Specialties

2900 N. Seventeenth St., PHILADELPHIA, PA.



Others ask up to $10.00

THIS HIGH GRADE

Sacro-Iliac BELT

Our Price $3.50

Beautifully made of six inch orthopedic webbing, well reinforced, supplied with perineal straps. High grade materials and workmanship throughout. Offered for a limited time only in order to keep our shop busy. Take measurements around the hips three inches below the iliac crest.

F. A. RITTER CO.

310 Woodward Ave., Detroit, Mich.

WE ALSO MAKE—Abdominal Belts, $3.50; for hernia, obesity, maternity, ptosis, post-operative. Hood Truss, $4.00; Thomas Leg Splints, $4.00; Ambulatory Splints, $15.00; Cervical Vertebra Brace, $20.00; Taylor Spinal Brace, $20.00, etc., etc.

(Continued from page 34)

FLORIDA CITRUS FRUITS

NATURSWEET TREE-RIPENED ORANGES AND grapefruit direct from our groves; special price hospitals and introductory boxes. Snively Groves, Winter Haven, Florida.

MILK IRRADIATOR

LIKE MANY ANOTHER GOOD DEVELOPMENT, Irradiated Vitamin D Milk for daily use is no longer a fantastic idea but a practical reality. Children who drink irradiated milk as a part of their regular diet receive automatic protection against rickets. And most satisfying in this connection, is the fact that dairies are not permitted to offer Vitamin D Milk prepared with the C. P. Milk Irradiator until cooperation of the local medical profession and health officials has been obtained. Further details concerning the control of the irradiating process is given on page 51 and scientific data will be furnished upon request to the Creamery Package Mfg. Co.

OLD X-RAY FILMS

WILL BUY ANY QUANTITY OLD X-RAY FILMS at highest price plus transportation charges. Larry Gering, Inc., 243-51 Parkhurst St., Newark, N. J.

PHARMACEUTICALS

SPRING'S OFFICIAL DEBUT IS PROMISED FOR the 21st of next month, but there are still a good many dark days before summer and plenty of need to prescribe vitamins A and D. And in the matter of cod liver oil, are you familiar with the palatability and potency of Patch's Flavored product? It is advertised on page 6 of this issue and the coupon will bring you free sample and literature.

IN PRESCRIBING FOR THE HEART PATIENT you may find it worth while to be well informed concerning the advantages of Theocalcin, a potent diuretic and cardiac stimulant manufactured by the Bilhuber-Knoll Corporation. The drug is available in 7½ grain tablets and as a powder. Further information appears on page 10. Note that samples and literature will be sent on request.

A MARKED IMPROVEMENT IN TECHNIC OF administering Dextrose. With the Vacoliter container developed by the Don Baxter Corporations some of the ever-present difficulties are avoided. The Dextrose comes to you in the Vacoliter container always of the same strength, always sterile, and always free from pyrogenic bodies. To use, you simply connect rubber tubing and needle and regulate pressure by gravity. Complete information and price list will be sent upon receipt of the coupon on page 26.

RADIUM

RADIUM BOUGHT, SOLD AND PREPARATIONS made to order; also a Supervised Radium Rental Service. Quincy X-Ray-Radium Laboratories, Quincy, Illinois.

RADIUM WANTED

WILL BUY USED RADIUM TUBES, NEEDLES OR plaques; new platinum needles for sale containing ½-5 milligrams. X-Ray and Radium Institute, Spartanburg, S. C.

X-RAY

IF THE PATIENT CAN'T COME TO YOUR X-RAY equipment you can take the equipment to the patient, and quite easily too, if it is the new Shockproof "Metalix" Philips Portable X-Ray. You will find it advertised on page 33 and full information may be secured from the manufacturer, at address given.

RADIOGRAPHS OF THE HIGHEST QUALITY CAN be produced with remarkable simplicity and exactness with the "Techron," advertised by the Kelley-Koett Mfg. Co. on page 46. Furthermore, this new and different apparatus produces as many radiographs as you want, as often as you want them, with uniform results. The coupon is provided for your use in requesting full details.

WHETHER YOU WANT X-RAY TUBES FOR ALL around radiography or for fine detail radiography and fluoroscopy, your needs are met by the modern bulb type tubes of the Machlett Laboratories. Their two models, for the respective purposes noted, are available at dealers throughout the country. Principal features of the tubes are listed in advertisement on page 29.

A.M.A. Lapel Button

One-half inch in diameter. Outer circle of bright, shining gold. Center of crimson enamel with gold rod and serpent emblem in deep relief. Screw stem fastener with safety lock. Price, $1.00, postpaid.

AMERICAN MEDICAL ASSN.
535 North Dearborn St. CHICAGO

Like salt sea air

IT'S THE SALT IN THIS TOOTH PASTE THAT MAKES IT SO REFRESHING

● We believe you will find Worcester Salt Toothpaste the most satisfactory toothpaste you have ever used. Its base is salt because, as you know, a salt solution is ideal for your teeth and gums.

Worcester Salt Toothpaste not only safely loosens film so that a toothbrush can remove this easily, but the salt in this toothpaste stimulates the circulation of the blood in the mouth tissues and is helpful in healing tender, bleeding gums.

You will find that Worcester Salt Toothpaste has none of the artificially sweet taste common to ordinary paste. It is salty and refreshing, like a breath of sea air. It leaves your mouth feeling delightfully refreshed and clean, and it takes away that stale taste from too much smoking.

Try a tube on approval: 'phone your druggist to send you a tube of Worcester Salt Toothpaste today. If you do not find it the most satisfactory toothpaste you have ever used, we will gladly refund your money.

Worcester Salt Company, ***America's oldest refiners of pure salt***, 40 Worth Street, New York.

FEW CANNED FOODS differ as widely—both in nutritional value and in taste—as tomato juices. The quality of the tomatoes themselves and the speed and skill with which they are handled are of vital importance, especially to Vitamin C content.

Libby's Tomato Juice is made by an exclusive *gentle press* method. This method gets none of the bitterness from skin or seeds, thus achieving finer flavor. And it also protects the vitamins, assuring a very high content of Vitamin C. Only choice red-ripe tomatoes are used. The juice is unseasoned except for salt.

Because of its delicious flavor, Libby's *gentle press* Juice has become an outstanding favorite. Your patients will welcome its inclusion in their diets. And you can be sure that they are getting "full-count" in vitamins A, B, C, and G, at moderate cost. Libby, McNeill & Libby, Chicago.

Accepted by the Committee on Foods of the A.M.A.

HOTEL RESERVATIONS

for CLEVELAND SESSION

AMERICAN MEDICAL ASSOCIATION

The time is rapidly approaching for the 1934 Annual Session of the American Medical Association, to be held in Cleveland June 11-15, 1934.

The Local Committee on Arrangements has appointed a Subcommittee on Hotels, through which all reservations for Convention visitors are to be cleared. The Committee is anxious to have every physician comfortably and satisfactorily located. If a choice of accommodations is desired, it is essential that reservations be sent in as early as possible. Below will be found a list of Cleveland hotels submitted by the Subcommittee on Hotels of the Local Committee on Arrangements. The form at the bottom is for your use in making reservation. Please note that first, second and third choice of hotel should be specified. Careful attention to this detail will assure good accommodations in event the hotel of preference is already filled. Additional information regarding the various hotels in Cleveland will be found on reading page 622, this issue of THE JOURNAL.

COMMITTEE ON HOTELS
Hubert C. King, M.D., Chairman

HOTELS IN CLEVELAND

Name and Address	Room—One Person		Room—Two Persons		
	Without Bath	With Bath	Without Bath	With Bath Double Bed	With Bath Twin Beds
ALLERTON, Chester Ave. & E. 13th St.	$2.00–$2.50	$3.00–$3.50	$3.00–$4.00	$4.00	$4.50
AUDITORIUM, St. Clair Ave. & E. 6th St.	.....	2.00– 3.00	.....	3.50– 4.50	5.00– 6.00
CARTER, Prospect Ave. & E. 9th St.	.....	2.50– 5.00	.....	4.00– 6.00	5.00– 8.00
CLEVELAND, Public Square	.....	2.50– 6.00	.....	4.00– 8.00	5.00– 10.00
COLONIAL, 523 Prospect Ave.	1.50	2.50	2.50	3.00	3.50– 4.00
FERN HALL, 3250 Euclid Ave.	.....	1.50– 2.50	.....	2.50– 3.00	3.50
GILLSY, 1811 E. 9th St.	1.50	2.00– 2.50	2.50	3.00– 3.50	4.00
HOLLENDEN, Superior Ave. & E. 6th St.	.....	2.50– 6.00	.....	3.50– 7.00	5.00– 12.00
MECCA, 1862 E. 9th St.	.....	1.75– 2.00	.....	2.50– 3.00	4.00
NEW AMSTERDAM, Euclid Ave. & E. 22d St.	1.50– 2.00	2.50– 3.50	2.50– 3.00	3.50– 4.50	4.50– 5.00
OLMSTED, Superior Ave. & E. 9th St.	.....	2.00– 3.50	.....	3.50– 4.50	5.00
STATLER, Euclid Ave. & E. 12th St.	.....	2.50– 6.00	.....	4.50– 8.00	5.00– 8.00
STERLING, Prospect Ave. & E. 30th St.	.....	2.00– 3.00	.....	3.00– 4.00	3.50– 5.00
RESIDENTIAL HOTELS					
ALCAZAR, Surrey Rd. & Derbyshire Rd.	.....	3.00	.....	5.00	5.00
BELMONT, 3844 Euclid Ave.	.....	2.50	.....	4.00	5.00
BOLTON, Carnegie Ave. & E. 89th St.	.....	2.00– 3.00	.....	3.00– 3.50	.....
DEVON HALL, 1588 Ansel Rd.	1.25	.....	2.00	.....	.....
LAKE SHORE, 12506 Edgewater Dr.	.....	2.00– 3.50	.....	3.50– 5.50	4.00– 6.00
PARK LANE, Park Lane & E. 105th St.	.....	2.50– 3.50	.....	.....	4.00– 6.00
SOVEREIGN, East Blvd. & E. 105th St.	.....	2.00	.....	3.00	5.00
WADE PARK MANOR, Park Lane & E. 107th St.	.....	3.00– 4.00	.....	.....	5.00– 6.00
WESTLAKE, Blount Rd.	.....	2.50	.....	4.00	4.50

NOTE: A number of the lower priced single rooms are equipped with double beds. Many of these rooms are available for occupancy by two persons at only $1.00 more than the single rate.

Keep this Reminder of Your Hotel Reservation

1st choice.....

2nd choice.....

3rd choice.....

No. persons.....

No. rooms.....

Date of reservation.....

Mail this coupon reservation today, please

DR. HUBERT C. KING, Chairman, Committee on Hotels
1604 Terminal Tower—Cleveland, Ohio

You are requested to reserve as First Choice Hotel.....

Second Choice Hotel.....

Third Choice Hotel.....

accommodations during the period of the Annual Session of the American Medical Association June 11-15, or for such other period as may be indicated herein, as follows:

☐ Single Room without bath; ☐ Double Room without bath; Occupants will be:

☐ Single Room with bath; ☐ Double Room with bath; .....

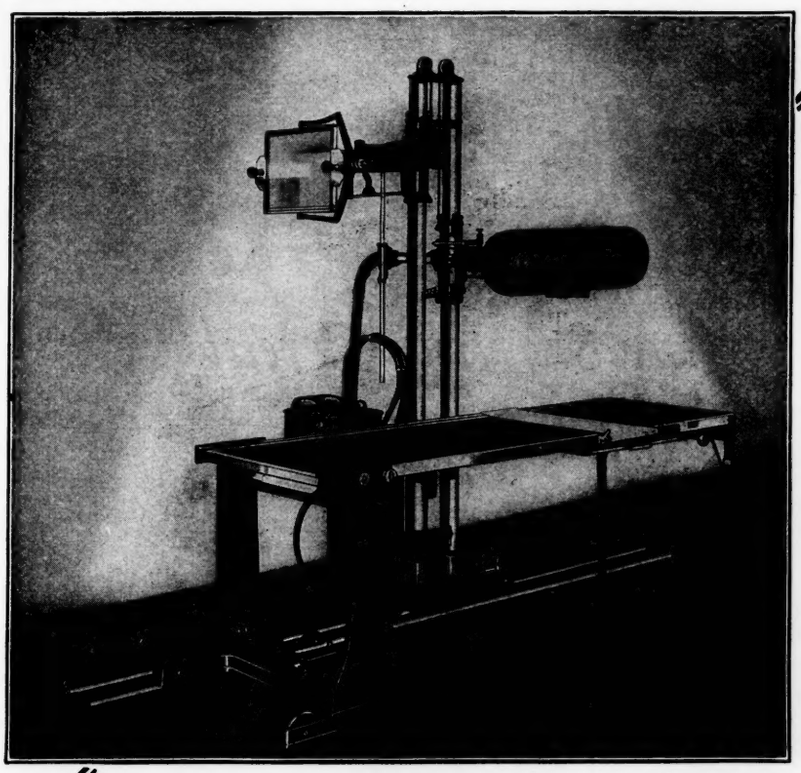
☐ Suite consisting of parlor and.....double rooms. .....

Arriving June.....at.....A. M.....P. M. .....

Name.....

Street and No.....

Postoffice.....



Read These ADVANTAGES . . .

—:—

POSITIVELY SHOCKPROOF. When properly grounded, no shock of any kind is possible for either operator or patients.

—:—

GIVES UNIVERSAL SERVICE. This unit provides both horizontal and vertical radiography, also horizontal and vertical fluoroscopy.

—:—

REMARKABLY FLEXIBLE. Changes from one position to another can be made within a few seconds—no tools needed.

—:—

DELIVERS 60 M. A. AT 88 K. V. P. Flash pictures of chest and stomach are easily possible.

—:—

OCCUPIES SMALL SPACE. Overall dimensions are 9½ ft. long, 5½ ft. wide, 7 ft. high. When not in use, unit can be pushed to wall out of way.

—:—

SURPRISINGLY LOW IN PRICE. The price is only $1700—includes tube, diaphragm, screen, timer and foot switch.

The New FISCHER 60-88 . . . Shockproof . . Diagnostic . . X-Ray Unit

What Users Say:

"I was very agreeably surprised when my FISCHER 60-88 was installed—it is so solid and massive looking and yet requires small space."

"I have never yet had to use the full power of my 60-88. This unit is certainly a wonder."

One of the X-ray experts from a large Chicago hospital, after a long and thorough examination of the FISCHER 60-88 said, "I congratulate you, this unit is complete in every way; there isn't a thing missing."

"Your unit is extremely good looking—the chromium and black give a beautiful, rich contrast."

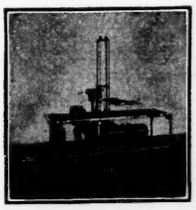
"We have just put your Shockproof unit on our floor and I think it is the most outstanding X-ray apparatus that has ever been produced."

"The thing that impressed me most was that your new unit could be installed so quickly and easily—no fuss and only two hours' work."

THIS new 60-88 Diagnostic X-ray Apparatus represents unquestionably the greatest simplification in X-ray manufacture ever made available to physicians. It is the final achievement of more than 20 years of X-ray building. It is 100% shock-proof in operation. Any part of this apparatus when properly grounded may be grasped or touched, while in operation, without the slightest shock or sensation of electrical discharge.

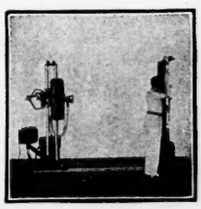
Operation is remarkably simple and flexible. Positions desired, vertical or horizontal radiography, or fluoroscopy, can be arranged instantly. Overall dimensions are 9½ ft. long, 5½ ft. wide, 7 ft. high. With the exception of deep therapy, this unit gives every radiographic and fluoroscopic service needed. Using modern films and high speed screens, you will get positively as efficient service as from any other X-ray unit on the market today, regardless of price. Designed for physicians' offices, hospitals and clinics.

Get the facts today about this new, low-priced efficient unit. No obligation. Write or simply clip and mail the convenient coupon.



Position for Horizontal Fluoroscopy

Position for Vertical Fluoroscopy



Position for Vertical Radiography

H. G. FISCHER & CO., Inc., A.M.A. 2-24-34
2323-2337 Wabansia Ave., Chicago, Ill.

I shall be glad to have full information regarding your new 60-88 Shockproof, Diagnostic X-ray Apparatus. No obligation. Please send your large, 2-color illustrated and descriptive folder by mail.

Name.....

Address.....

why . . .

we believe *You'll* agree

Gerber's is a fine Starting Cereal for Infants

FIRST—nothing is added to the whole wheat and hulled oats except ADDED WHEAT GERM for higher nutritive value.

SECOND—all harsh bran particles are removed after their valuable nutrients are extracted—and the cereal is finely strained for tiny digestive systems.

THIRD—It is processed, through every step, with the most scrupulous care and by most hygienic methods.

FOURTH—it is unseasoned in order that you may instruct the mother as to exactly the type and amount of seasoning required in her special case.

—and here, too, is a most important fact:

Gerber's Strained Cereal is not an adult cereal merely strained a bit finer for infant use; it is an infant's cereal planned, prepared and put up expressly for Babies—although older children and even adults find it pleasing.

Another factor in its goodness for babies is that this strained cereal is long-cooked in whole, fresh milk in order to provide the desired consistency in the finished product. *Every can of Gerber's cereal is uniform.*

The cereal itself is made from whole wheat, hulled oats and added wheat germ. The grain is thoroughly mixed and ground to a coarse flour. It is cooked, in whole fresh milk, in sanitary glass-lined retorts. All harsh, irritative particles are removed by straining through a finely perforated Monel metal. The Gerber exclusive cooking processes, which include cooking at 10 pounds steam pressure, have been devised so that the nutritive properties of the grains will be retained in high degree.

No further cooking is required at feeding. Merely warm. Dilute with milk or water for bottle feedings.

Truly a worthy addition to the famous line of Gerber Strained Vegetables.

Send for your FREE Sample today.

Strained Tomatoes . . . . Green Beans . . . . Beets . . . . Vegetable Soup . . . . Carrots . . . Prunes . . . Peas . . . Spinach . . . . 4½-oz. cans. *Strained* Cereal . . . . 10¼-oz. cans 15c

Gerber's

9 Strained Foods for Baby

GERBER PRODUCTS COMPANY, Fremont, Michigan A-2

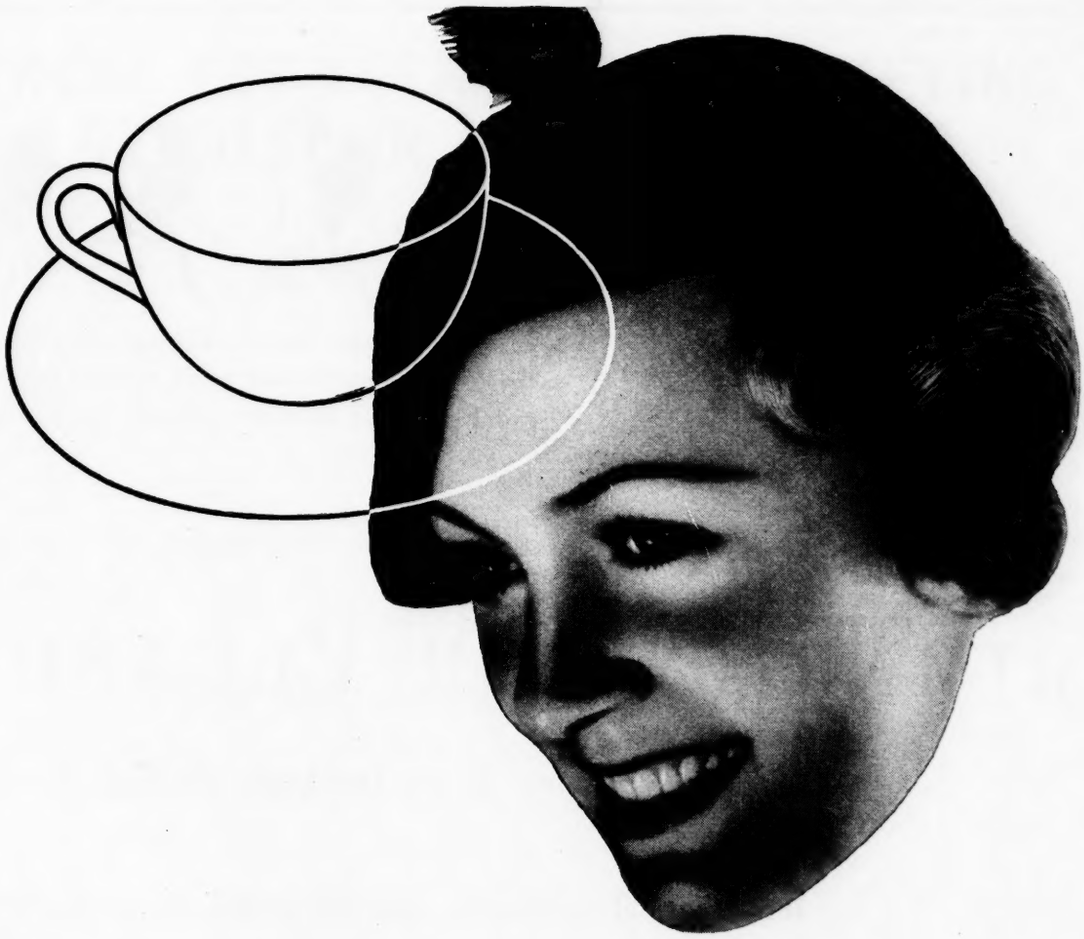
(In Canada: *Grown and Packed by* Fine Foods of Canada, Ltd., Windsor, Ont.)

Please send me ☐ Reprint of the article, "The Nutritive Value of Strained Vegetables in Infant Feeding."

☐ Sample can of Gerber's Strained Cereal.

Name..... *Address*.....

City..... *State*.....



Watch her smile when you tell her:

"You don't have to give up coffee"

ONLY a coffee-lover who's just been told she doesn't need to forego her favorite beverage could smile like that.

She's been told that all she should do is to change to Sanka Coffee. For Sanka Coffee, being 97% caffein-free, doesn't cause the wakefulness, the jangled nerves, and upset digestion from which she's suffering.

Will she like Sanka Coffee? The chances are that she will... immensely. For *just* caffein has been removed. All the flavor, fragrance, and cheering warmth of truly great coffee remains.

If you don't now prescribe Sanka Coffee for "coffee cases" we think you'll agree that it is the happy answer after you try it yourself. Your grocer sells it in vacuum-sealed cans with a money-back guarantee of satisfaction. Or mail the coupon below today—and receive a quarter-pound can free. Sanka Coffee is a product of General Foods.

REAL COFFEE
WITH 97% OF THE
CAFFEIN REMOVED

SANKA COFFEE CORPORATION A. M. A.—2-24-34
1 Joralemon St., Brooklyn, N. Y.

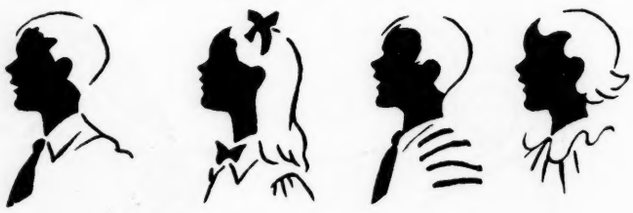
Gentlemen: Please send me without charge a ¼-lb. can of Sanka Coffee—also the booklet, "The Passing of 'Thou Shalt Not.'"

*Name*_____

*Street*_____

*City*_____ *State*_____

This offer expires Dec. 31, 1934—not good in Canada.



Be sure young people's teeth get enough daily chewing exercise. They need it. Soft foods are not sufficient. Chewing gum 5 to 10 minutes after meals is a help.

Chewing Gum is PRIMARILY FOR PLEASURE

Yet Laboratory Tests Indicate It Has Benefits

It is a normal reaction to enjoy Chewing Gum—partly because of the flavor, but in no small measure due to the satisfaction derived from the sheer pleasure of chewing. Laboratory tests show that the chewing of gum aids in preventing deposits on the teeth and increases flow of saliva. The increase of saliva immediately helps freshen the mouth and helps keep the teeth in good condition. From the scientific point of view, these are strong statements.

THE NATIONAL ASSOCIATION OF CHEWING GUM MANUFACTURERS

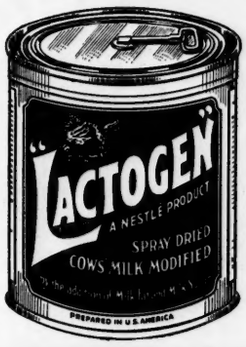
0-38

FOUR FACTORS THAT HELP TEETH LAST A LIFETIME ARE PROPER NUTRITION, DENTIST'S CARE, PERSONAL CARE, AND PLENTY OF CHEWING EXERCISE

THESE FORMULAS GIVE GRATIFYING RESULTS IN INFANT FEEDING

WITH MILK AND WATER

The addition of Hylac to fluid cow's milk and water results in formulas approaching natural balance.



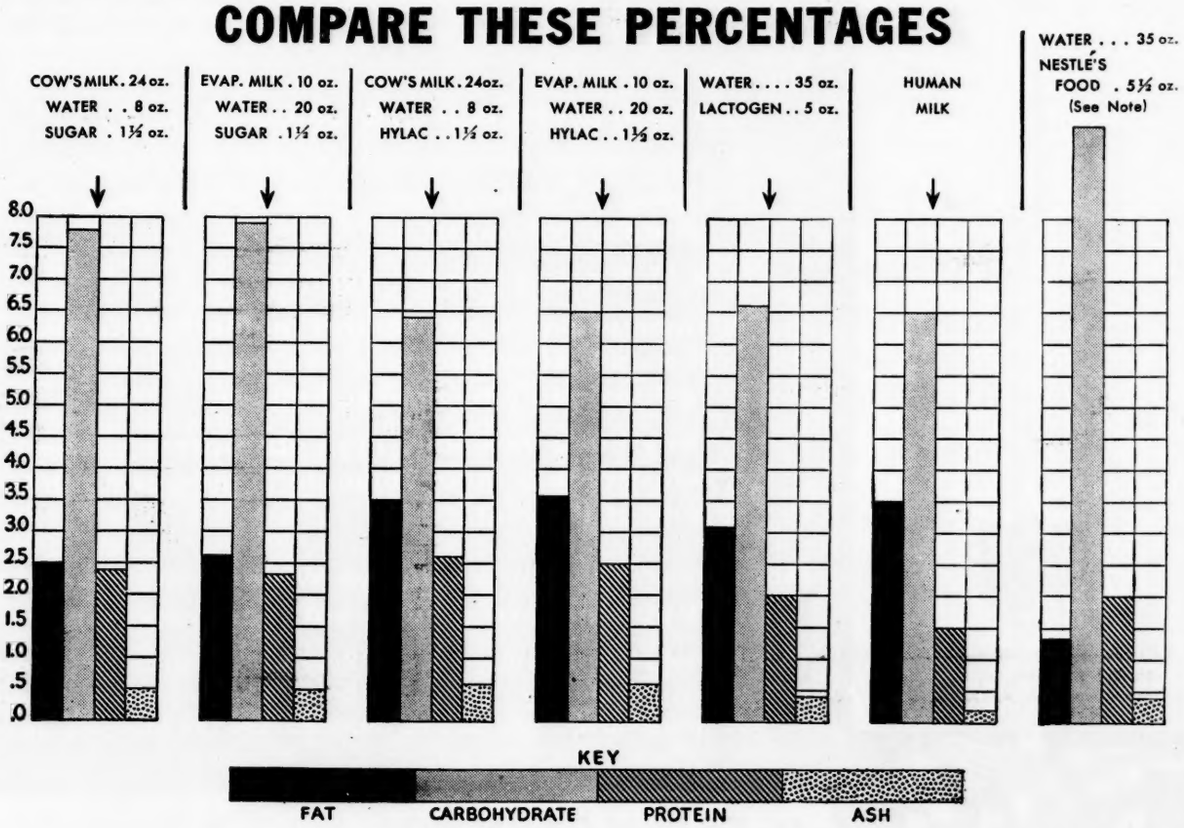
WITH WATER ALONE

A dried milk formula with all the advantages of properly modified cow's milk, plus increased digestibility.

WITH WATER OR MILK

A low fat, high mixed carbohydrate formula for infants who cannot tolerate formulas approaching natural balance.

COMPARE THESE PERCENTAGES



NOTE:— The above Nestlé's Food formula does not resemble human milk because it is designed for infants who cannot tolerate formulas which approach natural balance. (Nestlé's Food consists of malted whole wheat, malt, dry milk, sucrose, wheat flour, salt, dicalcium and tricalcium phosphate, iron citrate and cod-liver oil extract. Contains vitamins A, B and D.)

None of the above products is advertised to the laity. No feeding directions are given except to physicians. All three products have been accepted by the Committee on Foods of the American Medical Association. For free samples and literature mail your professional blank to:—

Accepted by the Committee on Foods of the American Medical Association

NESTLÉ'S MILK PRODUCTS, INC.

2 Lafayette Street Dept. 1-C-2A New York City

Do you know why Ry-Krisp

Helps Correct Common Constipation Due To Insufficient Bulk?

"Bran owes its laxative action not to the phytin or ash content, but to the crude fiber and pentosans present."[1] Consequently, Ry-Krisp is particularly effective as a natural aid in correcting common constipation — for these crisp, temptingly flavored wafers made of flaked whole rye, water and salt, provide these advantages:

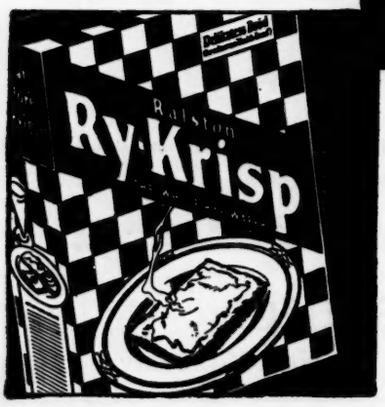
1. A high percentage of bran.
2. A pentosan content twice that of whole wheat. (Products made from refined flour have no pentosan content).
3. A high crude fiber content.
4. Their use will, by natural methods, increase the chief constituents of the faeces, i.e., food residue and intestinal secretions.
5. They have unusually high absorptive power, which makes them valuable in increasing the bulk of the diet.

ACCEPTED AMERICAN MEDICAL ASSN Committee on Foods

Moreover, Ry-Krisp Whole Rye Wafers taste so good that patients are glad to eat them regularly.

To help you plan special diets, our Research Laboratory Report on Ry-Krisp Whole Rye Wafers will be sent Free. Sample wafers for your personal use will also be included. Use the coupon below.

1 Mark Falcon-Lesser, Journal of Nutrition, Vol. 2, p. 295-310, 1930 Med. School, Univ. Mich., Ann Arbor.



RALSTON PURINA COMPANY, DEPT. I
205 Checkerboard Square, St. Louis, Mo.

Without obligation, please send Research Laboratory Report, and samples of Ry-Krisp Whole Rye Wafers.

NRA MEMBER U.S. WE DO OUR PART

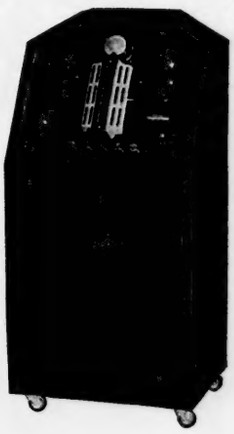
Name.....

Address.....

City.....State.....

(Offer limited to residents of the United States and Canada)

ANNOUNCING!



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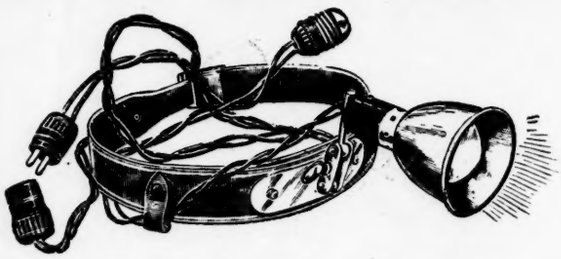

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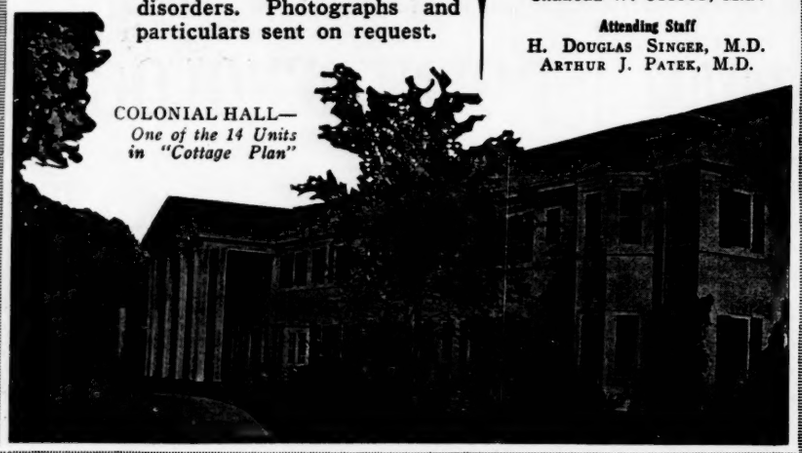

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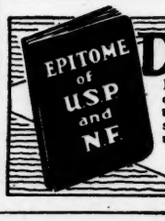

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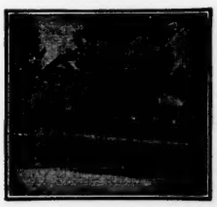

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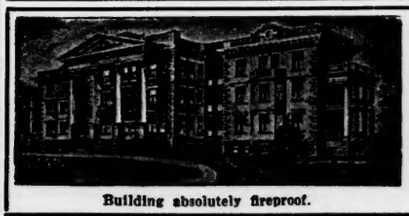

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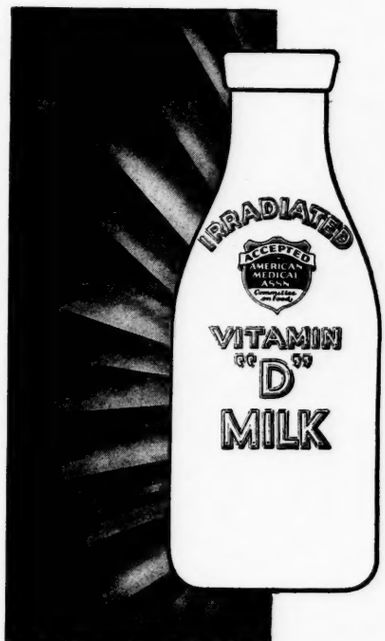

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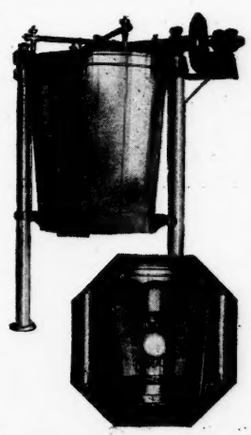

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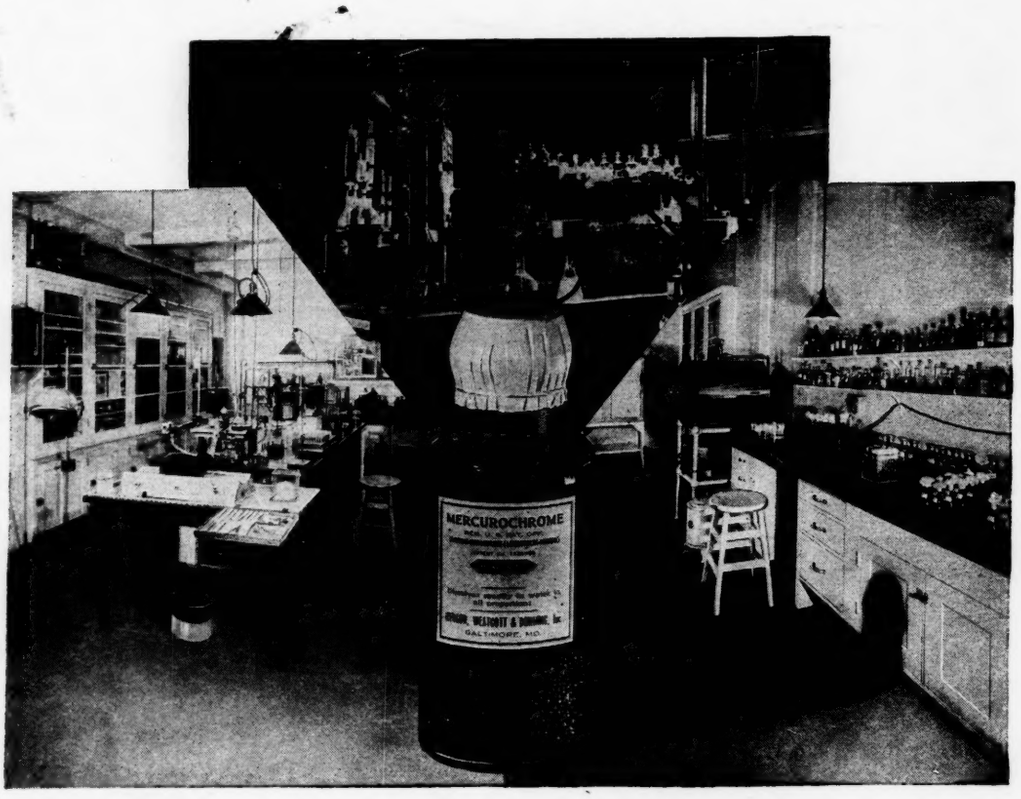

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